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THE PAPER TRADE JOURNAL.

"The Consumption of Paper is the Measure of a People's Culture."

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Trade Topics.

Boiler Proportion.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By W. H. WESTON.

Having made the plans for a stationary boiler which was built about three years ago, and which gave a saving in the amount of coal used of about 50 per cent. compared with the engine for which it was substituted, a description of it may be of interest.

The new boiler ran the same engine, pumps, &c., that the old one did, and these developing the same average power gave a very good chance to ascertain the amount of saving effected by the putting in of the new one. The result illustrates the fact that there are a great many places where imperfect and unsuitable equipments are in use at a waste of money, and that many times there is a loss which is not at all realized.

The principal trouble with the old boiler was its want of proper proportion and inadequacy of size to handle the amount of work that was expected of it. At the time the boiler was put in the work to be handled was the same as when it was taken out, it being simply an error of judgment in procuring it. The engine which supplies the power is considerably over twenty-five years old, having been overhauled and a new valve gear and valves of automatic cut-off type being put on some twelve or fifteen years ago. The pumps which are in use are Westinghouse air pumps, used for the trial of brakes, working air hoists, &c. And these are always pumps which have undergone repairs and which are under steam in trial, the whole amount of steam used being nearly uniform at all times. All piping was as direct as possible and was not changed in any way when the new boiler was put in. The same chimney was used without any change, except that for the new boiler a connecting flue about 35 feet long was used in place of a short one on the old boiler, the new boiler being placed in a house built adjoining the old boiler room.

The chimney, contrary to the usual nature of such things in a small power equipment, was considerably higher than was actually needed for the development of the given power if other things were in relative proportion. Consequently the place was favored by a strong draught, which was good at all times. As near as can be remembered the old boiler had a 48-inch. shell, 11 foot tubes, fire box 40x50 inches giving a little less than 14 square feet of grate area, and a dome 24 inches in diameter by 30 inches high. In type the boiler was an inside fire box, locomotive style.

In using the boiler the only way that steam could be kept up to the pressure required in sufficient quantity was by running the fire so thick as to be half or two-thirds the way to the top of the fire box at the front of the grate, and as thick as the tubes would allow at the back. Such a thickness of course could not have been used if it had not been for the strong draught of the chimney. It was a very wasteful method of running a fire, but, as said, it was the only way that the steam supply could be maintained. Every time that the fire was anywhere near a common thickness, no matter in what way it was handled, the steam would drop, and could not be kept from falling. These were the results of trying to drive a boiler to a higher power than its dimensions warranted, and the excessive amount of coal burned will always happen where necessity obliges so heavy a fire to be run in order to get a given amount of power from a boiler of improper dimensions to supply it. It makes no difference how good the attendant is, or how well he may handle the fire, if an excessive amount of coal per square foot of grate area is burned in the ordinary furnace there will be a waste of fuel to a greater or less degree.

The new boiler was of inside fire box locomotive pattern. The shell was 60 inches in diameter. The tubes were 88 in number, of 3 inches diameter and 13 feet long. The fire box was 52x68 inches inside, giving a grate area of a little less than 24 square feet, the old boiler having 14 square feet. The dome was 30 inches in diameter by 26 inches high.

The crown sheet, side sheets and back sheet of the fire box were three-eighths of an inch thick; the tube sheet was one-half inch thick; the throat sheet was five-eighths of an inch thick. All other plates were one-half inch. The material in all of the plates throughout the boiler was steel.

The specifications called for fire box plates of a tensile strength per square inch of between 50,000 and 55,000 pounds, and an elongation in 8 inches of at least 35 per cent. The plates for the shell were to have a tensile strength of between 55,000 and 60,000 pounds per square inch and an elongation of at least 30 per cent. All circumferential seams and those at the outside corners of the fire box were double riveted. All longitudinal seams had four rows of rivets and inside welts. The dome was secured to the shell of the boiler by flanging the shell plate up into the dome and flanging the dome plate out over the shell; this part was double riveted through, and there was a single row of rivets through the plate, which was flanged up into the dome. There was a 3½-inch water space on all sides of the fire box, 1-inch stay bolts being used, made of Lowmoor iron. Through stay rods from end to end were used. The head ends of the rods were screwed into the plate, and the smokebox ends had nuts. Both heads and nuts rested on copper washers. The rods were made of Lowmoor iron The crown sheet of the fire box was supported by crown bars held by braces which were pinned to T irons riveted to the shell plate.

As will be noticed this boiler had about 80 per cent. more grate surface than the old one; the heating surface being about 40 times the grate surface, or 1,000 square feet, total of tubes and furnace. The water surface for the disengagement of steam was about 80 square feet, or 3.33 square feet per foot of grate area. After the boiler was connected up and run for a time, it was found to work so easily that it was of interest to note the amount of coal used in comparison to what had been used in the old boiler. And it was found that the coal actually used per day was about 50 per cent. less than that used for the old boiler, the engine doing the same amount of work, and the same number of pumps, &c., being run.

The new boiler steamed so easily that it did not require anywhere near the attention that the other did. The steam pressure in each instance was about 90 pounds. There was no test made of the amount of water evaporated per pound of coal, as the boiler was not doing anything exceptional in this way; but the advantage of using a boiler of proper proportion was plainly shown.

Practical Hints and Helps Around the Mill.

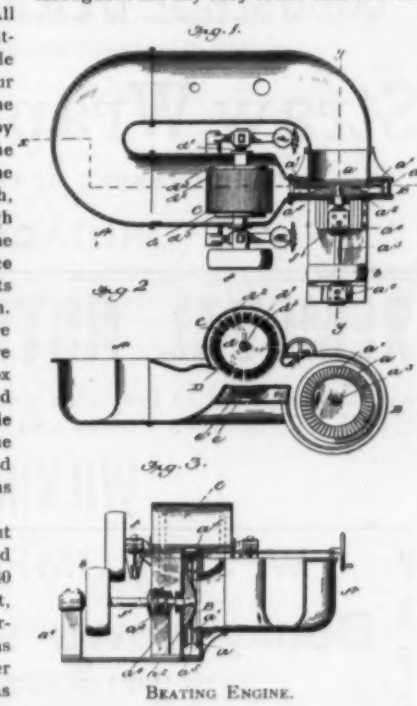
[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By J. F. C.

The calenders of the mill of to-day, whether on the machine or super-calenders, exert a very great influence in producing a well finished, marketable paper, and they may be a source of the heaviest loss to the manufacturer if they are not properly set in every respect and upon a solid and unyielding foundation. The march of improvement has been busy in this line also, and the manufacturer who is preparing to equip himself to-day will certainly be wise to avail himself of the products of advancement and experience which have been placed on the market during the past few years. The greatest advance is that in which the element of labor is reduced to a minimum, and the cost of production thereby lessened, enabling the manufacturer to secure a larger profit or undersell his less thoroughly equipped competitor.

This leads to the question, Where (if the new machines which are building are all from 100 to 130 or more inches wide) will the old machines of from 60 to 90 inches be in a few years?

Not long ago a manufacturer was troubled greatly on account of the uneven finish of his super-calendered paper, a portion of each day's product being less highly finished than the remainder. Investigation in the calender room only resulted in the statement that it was all treated in the same manner during the process of calendering, being run through an equal number of times and steamed equally. It was also found that this trouble had been present nearly all of the time, but in a less degree, the difference in the finish being less marked, and indeed very slight at times. By carefully comparing the finish of each roll throughout the day they found that the roll



BEATING ENGINE.

which was run through first in the morning had the poorest finish, and the difference between that and any finished later in the day was quite apparent, and it convinced them that they had found the source of the trouble, as indeed they had.

The theory of the matter is that not only friction, but heat is needed in calendering and finishing. Certainly no housewife would endeavor to do her ironing with a cold flatiron, and for the same reason the paper cannot receive the usual finish in the morning after the calenders have stood all night and got cold. The calender tender in this case was a new hand and had not got onto this wrinkle, of which his predecessor was aware, and which he overcame, partly at least, by setting the screws down harder on the first few rolls. Of course the calenders heat quickly and the difficulty is over. They will be heated sufficiently to give the regular finish in an hour from starting in the morning. A good way to remove this difficulty, where the paper is run through more than once, is to run a few rolls through once in the morning and lay them aside to receive the finishing later in the day when the rolls are thoroughly warmed up.

The finishing of coated paper on the calenders is a slower process than the ordinary super-calendered paper undergoes, and to obviate the necessity of running them through an extra number of times in the morning and to secure a more uniform finish they are generally adopting the tour work system of running them night and day, thus allowing them to cool down once a week only. While I am morally certain that the help do not relish such a change, it is equally as certain that the manufacturer must adopt such a system to attain the best results, until someone makes an improvement which will render it unnecessary.

Beating Engine.

A new beating engine is the subject of illustration on this page, Figure 1 being a sectional plan view of the machine, Fig. 2 a longitudinal sectional view on the line *x*——*x*, Fig. 1, and Fig. 3 a transverse sectional view on line *y*——*y*, Fig. 1.

A designates a vessel or trough of any convenient shape, preferably oval in plan view. In one end of this vessel is a grinding head, B, which comprises a stationary disk, *a*, having bars or rubbers, *a'*, projecting from its face, and a rotary disk, a^2, mounted on a shaft, a^3, supported by bearings, a^4, the disk a^2 also having bars or rubbers, a^5, opposite to those of the stationary disk. These bars or rubbers are preferably made of steel, chilled cast-iron or bronze, or other suitable material. A band-wheel, *b*, is on the outer end of the shaft a^3.

C is a second grinding head, which consists of a roller, *d*, mounted on a shaft, *d'*, journaled in the sides of the vessel A, and from the periphery of this roller project bars or rubbers, d^2. Adjacent each end of the roller *d* and movable therewith are centrifugal arms or blades, d^3. Immediately beneath this roller *d* is a bed plate *e*, of fixed bars or rubbers of steel or stone set in a groove or depression, *e'*, in the bottom of the vessel. The pulp after being discharged by the grinding head B will be acted upon by the roller *d* and bed plate, *e*, before being discharged into the vessel. The arms or blades d^3 serve to discharge any material coming from the grinding head B faster than can pass beneath the grinding head C. A blade or strip of metal, D, is attached to the top of the vessel A, immediately in rear of the roller *d*, and its edge is in close proximity to the bars or rubbers of the roller, the object being to prevent the pulp from being taken up over the rollers by the bars or rubbers. A pulley, *f*, is located on the shaft *d'* outside of the vessel or trough.

The bearings of the shafts a^3 and *d'* are preferably constructed with water spaces, *f'*, through or around them to keep them cool so that they can be run at a high velocity to do their work more quickly.

Conflict of Laws with Regard to Demurrage.

[WRITTEN FOR THE PAPER TRADE JOURNAL].

It is remarkable how few cases with regard to the right of railroad companies to charge demurrage have been carried to courts of last resort. It is no less astonishing how inharmonious are the few decisions rendered on the subject. The result is that the railroads insist on charging, and usually collect demurrage in every possible instance. All kinds of carload freight are liable to this exaction.

The right to demurrage, if it exists as a legal right, the Supreme Court of Illinois maintains, is confined to the maritime law, and only exists as to carriers by seagoing vessels; but it is believed to exist alone by force of contract. All such contracts of affreightment contain an agreement for demurrage in case of delay beyond the period allowed by the agreement, or the custom of the port, to receive and remove the goods; but the mode of doing business by the two kinds of carriers is essentially different.

For example: Railroad companies have warehouses in which to store freights. Owners of vessels have none. Railroads discharge cargoes carried by them. Carriers by ship do not, but it is done by the consignee. This position is indorsed by the Supreme Court of Nebraska, which declares that it knows of no authority for charging demurrage, unless by virtue of contract or statutory law, or possibly by such use and custom as may have acquired the force of law.

The consideration which these courts give to this important question, it has been said, is extremely meagre, and their weight as authorities cannot consequently be considered great.

A New York decision is to the same effect in so far as it decides that there is no lien on freight for demurrage. The trouble arose in the first case over a shipment of paper; in the second over a shipment of lumber, and in the third over a shipment of marble. In the last case, where the creation of a lien was denied, the existence of a regulation to make an extra charge for the detention of cars, acquiesced in by the consignee, was deemed to have constituted in effect an implied contract, at least to pay the extra charge.

Opposed to the foregoing is a Massachusetts decision, where a railroad company had a regulation and usage by which cars containing certain kinds of goods should be unloaded by the consignee within twenty-four hours after notice to him of their arrival, and for delay in unloading after that time the company charged $2 a day for each car which contained such freight and was owned by another railroad company, that for a delay in unloading the company, in its capacity as a warehouseman as against a consignee who had knowledge of these facts, had a lien upon a carload for storage.

Likewise, the Supreme Court of Georgia holds that it is competent for a common carrier whose customers, at their option, have the privilege of unloading for themselves the vehicles in which their freights are shipped, to adopt and enforce a reasonable regulation as to the time within which the vehicles may be unloaded free of any expense for storage, and to fix a reasonable rate per day at which storage will thereafter be charged for the use of such vehicles so long as they remain unloaded.

Notice before shipment is said to be sufficient to bind customers, whether the regulation is indicated upon bills of lading or not, and whether the shipments are made to the order of the consignors, with directions to notify the customers, or directly to the customers themselves.

This same doctrine has been recently laid down by the Supreme Court of Appeals of Virginia, as well as followed by inferior courts in Colorado, Kentucky and Texas. Even in Illinois, one of its ablest Circuit Court judges holds that the paper case first above mentioned does not control shipments of such commodities as coal, which cannot reasonably and practically be stored.

Electro-Chemistry in the Paper Mill.

Fourth Paper—Laws of Electrolysis.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By JAMES F. HOBART.

The meaning of the term "Electrolysis" is: Chemical decomposition effected by means of an electric current.

When an electric current is sent through an electrolyte, *i. e.*, a liquid, which, as described in the third paper, permits the current to pass only by means of the decomposition of the liquid, the decomposition which ensues is called electrolytic decomposition, or, for short, electrolysis.

The electrolyte is decomposed or broken up into atoms, or groups of atoms, or radicals, called ions.

The ions are of two distinct kinds, viz.: The electro-positive ions, or kathions, and the electro-negative ions, or anions.

Since the anode of the electric source is connected with the electro-positive (+) terminal, it is clear that the anions, or the electro-negative ions, must appear at the anode, and the kathions, or electro-positive ions, must appear at the kathode.

Hydrogen, and the metals generally, as given in the table presented with Paper III., are kathions. Oxygen, chlorine, iodine, &c., are anions.

The vessel containing the electrolyte, anode and kathode, and in which the decomposition takes place, is sometimes called an electrolytic cell. Such a cell is some-

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times also called a voltameter when it is arranged for measuring the current passing through it. This is done by measuring (by weight) the amount of decomposition effected.

With the above explanation, we can comprehend Faraday's laws of electrolysis, the principal of which are given herewith:

(1) The amount of chemical action in any given time is equal in all parts of the circuit.

(2) The number of ions liberated in a given time is proportional to the strength of the current passing. Twice as great a current will liberate twice as many ions. The current may be regarded as being carried through the electrolyte by the ions; since an ion is capable of carrying a fixed charge of + or — electricity, any increase in the current strength necessitates an increase in the number of ions liberated.

(3) When the same current passes successively through several cells containing different electrolytes the weight of the ions liberated at the different electrodes will be equal to the strength of the current multiplied by the electro-chemical equivalent of the ion (see table in Paper III.).

Another law has been formulated by Kohlrausch concerning the velocity of electrolytic conduction. He deduces that each atom has a rate of motion for a given liqaid which is independent of the element with which it may have been combined.

In the following table the rate of motion of various kinds of atoms through nearly pure water is given for a difference of potential of 1 volt per linear centimetre:

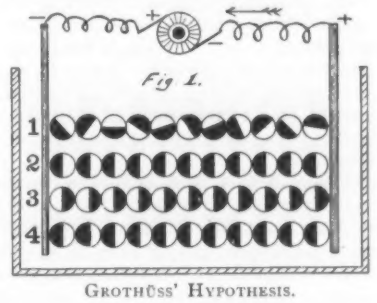
H. (Hydrogen) 1.08 centimetres per hour.
K. (Potassium) 0.205 centimetres per hour.
Na. (Sodium) 0.126 centimetres per hour.
C. (Carbon) 0.213 centimetres per hour.
I. (Iodine) 0.216 centimetres per hour.

Hydrogen travels the fastest of any element, and when produced by the electrolytic process possesses qualities different from the gas produced by chemical means. The latter may be called "molecular" hydrogen, there being two atoms in each smallest divisible part. The electrolytic hydrogen is "atomic" hydrogen, *i. e.*, its bonds are open or free. It therefore possesses much stronger chemical affinities than does molecular hydrogen.

In the electric decomposition of water electrolytic oxygen is evolved at the same time as the electrolytic hydrogen. Electrolytic oxygen has been successfully employed in bleaching. Hydrogen peroxide (H_2O_2) is also formed, and this, too, acts as a bleaching agent.

The action set up during electrolysis is explained in two ways: one advances the theory that electricity is a single fluid, the other presents a double fluid scheme, whereby the atoms (ions) go to their respective electrodes by means of separate + and — currents of electricity. Lodge favors the double fluid hypothesis, but Grothüss ably advances and supports the single fluid hypothesis. It seems, too, as if Faraday also favored the latter.

Figure 1 represents Grothüs' conception of what is going on during electrolysis. His supposition is that, as shown at the upper level of molecules (1) before the electric circuit is closed through the cell, the molecules are arranged in an irregular condition



GROTHÜSS' HYPOTHESIS.

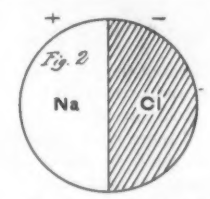
at the upper row or layer; but when current is forced through the cell, by means of the dynamo shown at the top of the engraving, the molecules all arrange themselves as shown at (2). There the sodium end of each molecule, being electro-positive, turns toward the kathode; the chlorine, being electro-negative, is attracted in the other direction, and thus presents itself looking toward the anode.

As long as this state of things continues the cell is said to be polarized, and there is no change in the position of the atoms, and this will continue as long as the current of electricity is just about equal to the electrical tension between the atoms in each molecule; but let the electrical power be increased sufficiently to overcome the electro-motive force of the electrical union which exists between the chlorine and sodium, and they are torn apart, each going to its respective electrode.

According to Grothüss, when the circuit is closed, and polarization is effected, there then occurs a decomposition of the polarized chain, whereby the chlorine of the outermost molecule goes to the anode, and the atom of sodium thus liberated at once unites with the chlorine of the molecule nearest to it, the sodium of that molecule in turn going to the chlorine of the next, and so on through the entire chain shown at (3). The next action is at 4, when there is shown a semi-rotation of the molecules caused by the readjustment described in the preceding paragraph. The molecules are now in position again to go through with the same thing over again, and the process is continued as long as the current flows of sufficient strength to overcome the resistance of the electrolyte and apparatus.

A molecule is shown by Fig. 2 as "conventionalized" for the purpose. and Fig. 3 shows a chain of these molecules; Fig. 4 gives a view of them after one atom of Na and one of Cl have been translated to the anode and kathode respectively.

The affinity of the electrolytically separated Cl, is so great for Na, that it at once

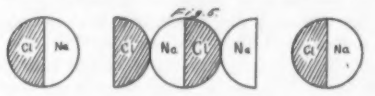


CONVENTIONALIZED MOLECULE.

POLARIZED MOLECULAR CHAIN.

ABSORPTION.

lays hold of and unites with the Na of the molecule next to it, as shown by Fig. 5. This readjustment is continued through the



DECOMPOSITION.

entire chain, and through the millions and billions of chains which go to make up the body of the electrolyte. The result is that each chain has one molecule less when the reconstruction is finished, as shown by Fig. 6; but another molecule at once falls into

READJUSTMENT.

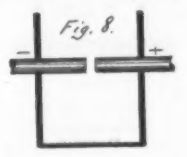
line from the surrounding body of electrolyte. The molecules swing half way around under the polarizing effect of the electric current, and take the position shown in Fig. 7, which is exactly the same as in Fig. 8.

POLARIZATION.

This forms a complete cycle of the operation of elecrtolysis, and one which is constantly repeated until atom by atom the molecules of Na Cl are decomposed into sodium and chlorine.

From a study of this theory of electrolysis it must become impressed upon the mind of the reader that there should be a considerable saving in electrical power by making the molecular chains as short as possible. To a certain extent this is so, but the electrodes should not be brought so close together that there is no opportunity for the escape of the liberated ions. If the anode becomes covered with chlorine, thus greatly increasing the ohmic resistance of the electrolytic cell, there should be space enough between the anode and kathode to permit free circulation of the electrolyte. Beyond this the electrodes should be close together.

As an approach to the commercial electrolysis of NaCl, consider the situation when two carbon rods are placed in a vessel of salt solution and the current is up with a dyna-



SIMPLE ELECTROLYTIC CELL.

mo, as shown in Fig. 8. Here the chlorine and sodium thus liberated react upon each other and form sodium hypochlorite (NaO HCl).

The sodium (Na) liberated by the electrical current at once unites with hydrogen and oxygen from the water in which they are in solution, and form caustic soda, NaOH. When the chlorine recombines with this substance the hypochlorite of sodium is formed directly in the electrolytic cell. It is only necessary to heat this chemical in order to decompose it and to cause it to give off chlorine gas readily.

Hypochlorite of sodium is not particularly desirable for paper mill use, and if some means can be devised for keeping the chlorine from reuniting with the sodium, it would be advisable; and even after such a separation has been brought about, the chlorine gas has such an affinity for hydrogen that it will take it away from the water in which the sodium chloride is dissolved, thereby forming hydrochloric acid (HCl). In order to obtain the chlorine alone, another method will be required, and the electrodes must be separated by a diaphragm, or some form of porous material, which will permit electricity to pass, but which will effectually stop any of the ions from becoming mixed up with each other after they have been separated.

To this end, the "electrolytic cell and diaphragm" will form the subject for discussion in the next paper.

(To be continued.)

Artificial petroleum may be produced simply and cheaply by the distillation, in a strong iron vessel, under a pressure of 25 atmospheres, of the animal fats and oils at a temperature of 300° C. Under favorable conditions 70 per cent. of the fatty oil is transformed into petroleum, which is 90 per cent. of the theoretical yield. The product thus obtained has been found to be in every particular identical with natural petroleum.

Correspondence.

Great Britain.

[FROM OUR REGULAR CORRESPONDENT.]

LONDON, May 25, 1894.

Paper mills everywhere for sale! That is the record at present, and it certainly is not a symptom of robust health. Kent, the paper making county, *par excellence*, sees to have had an undue share of misfortune. The Tovil Mills at Maidstone, a pretty big concern, with three machines, and two small mills at Dover, will be sold by public auction shortly. One of these is a toy house with a 48 inch machine, and there is very little chance, at any rate in England, for paper making in miniature. Besides these the Glory Paper Mill will be sold by private treaty, if possible; but it will not be any easy matter to sell it at all in the face of its record of ill luck. A tendency with us at present seems to be that very small concerns go pretty quickly to the wall, but although the number of mills in work may diminish, I do not think the paper making capacity of the country goes down. If it is melancholy to see the number of mill properties on the market, it is satisfactory to know that additions are being made or have been made to numerous works throughout the country. The Scottish mills in particular have been adding to their forces, and without exception our paper makers' engineers are extremely busy.

Meanwhile the French trade is in a bad way, and, if anything, in a lower condition than the industry here. The French Association of Papermakers has taken up very actively the question of shutting down on Sunday. As it is, the great majority of the French mills work perpetually, seven days a week. In spite of all their efforts, however, the association can only persuade one-third of the trade to shut down on Sundays. Outside of certain specialties, such as cigarette papers and photographic papers, the French have practically no export trade, and it is proposed to form a "Syndicate of Exportation," which will relieve the home market by sending stuff abroad to be sold at any price it will fetch. The exporters would receive a premium from the trade, and the idea is based upon what is said to be the practice of the English merchants, who, according to our French friends sell for 80 frs. in Paris what they will not take less than 100 frs. for in London. Another thing that is urged upon the trade is to agree not to sell broken webs. This seems the point upon which there is the most unanimity, and the French trade will probably set a good example in working up broken news, &c., instead of selling it at a reduced price.

When the cholera scare was on it was proposed that cooking establishments should be set up in the principal continental rag centres, and that rags should be imported in the form of pulp. The saving on

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freight and the advantageous loss in microbes would of course be considerable if this idea were to be adopted. From this to the idea of setting up esparto cooking establishments in Spain and Algeria is not a far cry. Esparto cooks down so very considerably that the economy in carriage would be enormous, but on the other hand it is not everybody who can manage this stuff, and there is the question of alkali to consider. The esparto grower would save very little if he had to buy his alkali in England. The French have made up their minds long ago that they cannot manage the grass, and it is only in England that the most can be got out of it. This is a fact. Even the Germans cannot handle esparto properly; but here even paper makers whose staple raw material is straw, find an absolute economy of labor and fuel in mixing in a little esparto with the wheat or oat stalks. Straw alone, like old "Brer Rabbit," lies low and refuses to be cooked, but the admixture of a little alfa keeps it up to the mark, and not only gives a better half stuff, but assists the cooking operations.

In one way anyhow Parliament helps the paper makers on their road. The last session, an abnormally long one, was prolific in petitions, also abnormally long. They numbered, according to a report just issued, not fewer than 34,000 separate "prayers," and the signatures, good, bad and "suspect," reached a total of considerably over 5,000,000. Each one of these petitions is good business for the paper makers; for the petitioners use superior paper and miles of it. They go on the principle that a "prayer" impresses the House as much by bulk as by number of signatures. A petition is "vital" only during the session in which it is presented. If it represents an important movement the sense of it is preserved in a printed form. What becomes of the original copy with its miles of signatures? It is subjected to a process which the rigid economist abhors, for it is not sent to the paper maker for remanufacture, nor consigned to the humble uses of parcel wrapping, but is committed to the flames. And so the game goes on. It is doubtful whether a petition ever did anybody any good except the paper maker. In hotly contested matters such as Home Rule there is petition and counter petition, and the only people who do not talk of a waste of paper are the petitioners and the paper makers.

Trade is very so-so; but the general impression seems to be that the barometer is going up. There have been no serious failures since the heavy batch I reported. Technical education has been held up so persistently as the one thing wanting in the English workshop that it is not surprising to find that the London County Council is taking up the matter energetically. A conference will be held in a few weeks to discuss the existing provisions for technical education in the book, paper and printing trades. In this country, however, it is not the men with a technical education who are the successes. On a big Australian farm you sometimes find Bill Higgins, ex-convict, boss, and Fitz-Clarence Plantagenet, M. A. (Oxon.), sheep shearer, and it is something the same in the English paper mill. I know a man whose techical knowledge of paper making is abnormal and as a paper maker he is simply a ghastly failure. I know another whose eyes have taught him all he knows and who seems to have a sort of intuitive instinct in the noble craft. He is about the biggest success we have in the industry, although he never had any education of any kind, technical or otherwise. Mind! I am not such a thorough-going idiot as to say that technical education is of no good; but it is by no means the universal medicine for sick trade that it is held up to be.

ALFA.

Miami Valley.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, June 6, 1894.

Business in this section of Ohio is in an unsettled condition. With a coal famine imminent, and no possible egress, the paper trade may experience almost a total paralysis.

It is not the aim to spread alarm, but the situation has become so serious, not only in this neighborhood, but in others, that a general shut down may result. However, only one or two have thus far succumbed, but, as the supply of coal is limited, and the main source at Cincinnati is rapidly dwindling, more mills will undoubtedly suspend. Rather than pay the material increase demanded by dealers in a position to sell, paper manufacturers prefer to close. To run at full capacity and suffer an absorption of profit and a continual loss is not at all relished in a valley so prolific and versatile.

"The mills supplied by gas will have a great advantage," remarked Maurice Nixon at the Beckel the other evening. The Nixon Paper mills are thus operated and many others in the Indiana gas belts. E. B. Weston, one of a party of manufacturers, expressed his gratification at the situation in Indiana. The Weston Paper Company's plant at Greenfield is enveloped with gas. The very air smacks of it and the mill owners have ample gas grounds to lease. In fact, there is an overabundance, the most telling evidence coming in the way of an explosion at these mills some time ago. There are very few mills in this State run by gas. Just now the consumption would be general if it was available. It is fortunate for coal operators that it is not, for a test would result, it is thought, in a change of fuel for power purposes even though the expense should remain unchanged.

"Speaking about the coal situation," remarked Philo D. Beard, president of the Columbia Straw Board Company, who was reclining in an easy chair thoughtfully smoking when approached by your correspondent at the Beckel the other evening, "the Ohio manufacturers have not as yet appreciated the extent of its seriousness. I must admit that our company has noticed the effect. We will be in bad straits if the difficulties are not shortly adjusted by arbitration. Of our thirty-nine mills in the various States fourteen are closed, mainly on account of the scarcity of coal. Several of our Ohio mills will be in the same position this week if relief does not come in some manner. Of course you know it requires a ton of coal, if not more, to make a ton of paper, and you can readily appreciate the vastness of the complications if no fuel is to be obtained. We hope for a speedy settlement."

Mr. Beard noted the increase in price of straw paper, and attributed it to the coal situation. Coal operators are advancing the price, and there is no other alternative. The increase must be reciprocal. Analogous circumstances will exist in other industries, for what is true of the paper trade is likewise true of other branches.

The president of this great corporation is a modest gentleman of pleasing address, and is business from the floor up. He did not tarry long in Dayton, as his mission was of no public importance.

The correspondent of THE PAPER TRADE JOURNAL has made an endeavor to feel the pulse of the paper trade in this section regarding the construction of a ship canal over the Miami and Erie route. It seems that, with few exceptions, the expressions favor the project, and consider in a generous light the feasibility, benefits and probable success of the vast improvement.

A few of the expressions are here given, and others will follow in another letter. They are brief and terse, but their sententiousness will add force and meaning:

E. B. Weston, president of the Weston Paper and Manufacturing Company, Dayton: "It is undoubtedly feasible, and the benefits would be inestimable, not only to Ohio, but America at large. With this ship canal New York and New Orleans would be almost directly connected. A waterway connecting two such important cities is one that will spread its advantages. I could write several columns on the matter for you extolling the project, but why is this necessary when the advantages are so apparent and, like aphorisms, are so evident that an explanation is a waste of time? I hope immediate action for an appropriation for the survey will be made, and that the Senate Committee will prove its existence."

J. K. Thomas, president of the Wardlow-Thomas Paper Company, Middletown: "I believe the best route for a ship canal between the Lakes and the Gulf is via Miami and Erie from Toledo to Cincinnati. It is the shortest and most direct, connecting a great manufacturing city and district, and giving increased facilities and cheaper transportation for both raw and manufactured material, and the distribution of the same from a recognized central point by river and rail. The twenty-six counties adjacent thereto are the most fertile in the State and contain probably more good manufacturing towns and cities than any other equal part of the State."

W. W. White, president of the White Paper Company, Dayton: "It would be beneficial to Dayton, and we desire very much to see it accomplished."

A. S. Wrenn, president of the Wrenn Paper Company, Middletown: "I would regard a ship canal between Toledo and Cincinnati not only an ineffable blessing to the State and Western country, but as a great national benefit as well. It would connect the navigation of the Lakes with the Western rivers and the Gulf, which would prove of incalculable advantage to trade and commerce; besides, this canal would wonderfully strengthen the defensive position of our country in time of war."

Richard Hartje, of Hartje Brothers, paper manufacturers, Steubenville, Ohio: "The canal would be of great benefit to us as well as all other manufacturers in this locality, and I hope the improvement will find a speedy consummation."

Colin Gardner, president of the Tytus-Gardner Paper and Manufacturing Company, Middletown: "I think a ship canal from Toledo to Cincinnati feasible, and would, no doubt, be a recognized success. It would give to this valley untold advantages to both manufacturing and agricultural interests."

William Michael, president of the Perrine Paper Company, Franklin: "I think that the Miami and Erie Canal could be made into a ship waterway from Toledo to Cincinnati with profit and benefit to the State at large. Especially would it prove an advantage generally to shippers, in equalizing freight rates of this and South and Southwestern States. Experience shows us that the mule canal we have curtails freight rates. Competition is the life of trade."

C. W. Young, vice-president and general manager of the White Paper Company, Dayton: "The benefits derived from a ship canal between Toledo and Cincinnati would be so varied and indispensably great that it is impossible to state briefly just what they are. Such a canal would benefit the entire country indirectly, and despite the expenditure I think the project should be under way and pushed to completion as fast as possible."

Philo D. Beard, president of the Columbia Straw Board Company, Chicago: "I have no objections to discuss the matter informally with you, but as I have given the subject little thought I could submit nothing of any importance for publication. I have as yet no views for expression, as I do not wish to commit myself without first knowing what I am talking about."

Charles Whealen, district manager of the Ohio mills of the American Straw Board Company, Dayton: "Yes, it is obvious such a canal would result in a revolution of commerce to the greatest advantage of this prosperous inland country. We need that improvement, and although it costs $50,000,000 we should have it. The State owns 14 feet on each side of the present canal, and as 60 feet are required for the width of the proposed new canal it may be with some difficulty that the ground can be purchased in the cities. Boom the improvement!"

Maurice Nixon, of Nixon & Co., Richmond, Ind.: "Certainly the canal would be the epitome of business advancement in this valley. I fear it will be a long time before the improvement will receive final action. It's a big and busy undertaking."

H. H. Laubach, president of the Dayton Paper Novelty Company, Dayton: "I favor the Miami and Erie route, but inasmuch as others have been suggested, and particularly the one from the Lake to Pittsburg, I consider that a merry war will be on. These vast ameliorations do not come biennially, you know, and the American manufacturers are up and about looking for their own interests. However, the advantage of this ship canal would not be merely local, and no contention should interfere with the progress of the work in this valley."

Geo. W. Crouse, president of the Akron Paper Company, Akron: "I must confess to you that inasmuch as I entirely fail to see the feasibility or success of such a project, or the benefits to be derived therefrom, I cannot give you anything worthy of publication. I am open to conviction, however."

John H. Tangeman, of Tangeman & Co., Star Paper Mills, Lockland: "I have read in particular of the efforts of ex-Congressman Caldwell the past two years, with reference to the construction of a ship canal, with a great degree of interest. There can be no doubt of the feasibility of construction or of the fact that it will afford much cheaper rates of exchange between Kentucky and Ohio and Lakes Superior and Huron. When we have increased marine facilities between Toledo and Cincinnati we will note a very large increase of business along all intermediate points."

Frank M. Nixon, of the Thomas Nixon Paper Company, Richmond, Ind.: "As far as my knowledge extends as to the condition of the present canal, I think the feasibility of the proposed change unquestionable; as to the benefits—they would be widespread and inestimable to the various manufacturing industries between Toledo and Cincinnati. An outlet into the Ohio would be absolutely necessary to make the canal of real value."

The paper mill owned by the Geo. H. Friend Paper Company, of West Carrollton, located at Miamisburg and known as "No 4," burned to the ground on the afternoon of June 1. The fire started supposedly in the rag department from spontaneous combustion and had advanced to such an extent that the local fire department was outmatched. The water had been drawn from the canal, and with fuel as dry as tinder and a lack of water the fire accomplished the most complete demolition. The works were shut down for a few days prior to the blaze. The loss is full $40,000 and may amount to more. The plant was sold several years ago by Hon. Emanuel Schultz to the Geo. H. Friend Paper Company, but since that time material improvements have been added. An insurance of $26,000 was held.

It is possible that a new mill will, in the course of the near future, appear where the dismantled remains of the plant now lie, but Howard Friend, the operator, will advance no definite information in this respect. When questioned he smilingly replied that these times were stunners. He is shrewd, energetic, attentive and prosperous, and if it is advisable to rebuild the structure he will do so.

B. F. Reist writes to Charles D. Mead that unless the situation changes in a few days the Morrison & Cass Paper Company would necessarily close on account of the scarcity of coal at Tyrone, Pa.

Col. H. E. Mead's barn in Oakwood was destroyed by fire last week His handsome residence almost shared the same fate; also his coachman's house. The department

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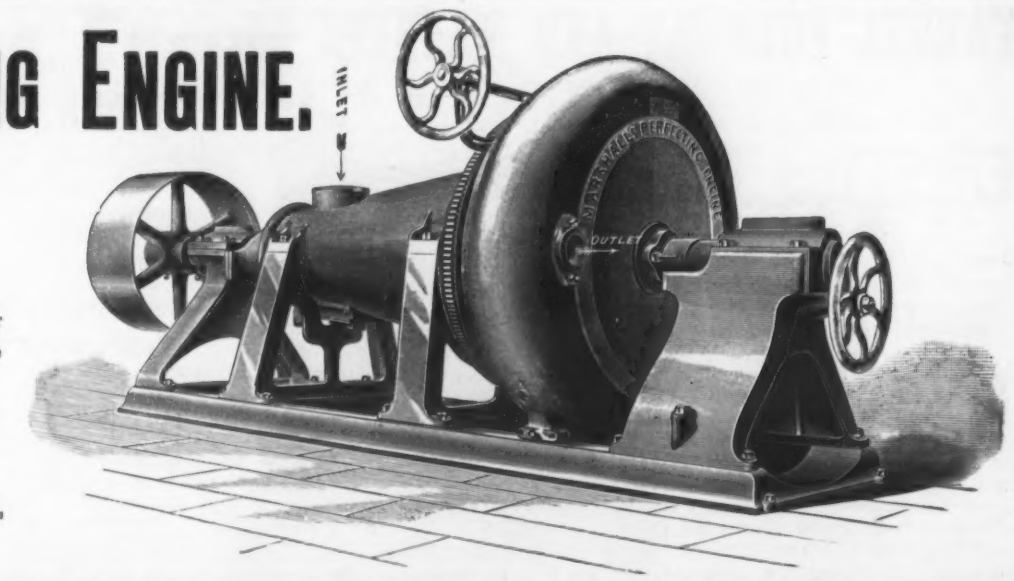

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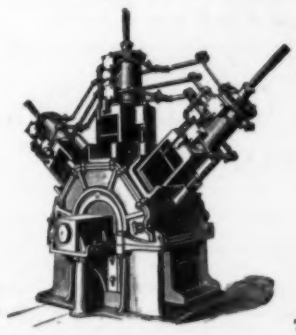

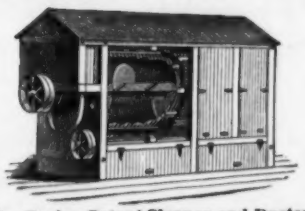

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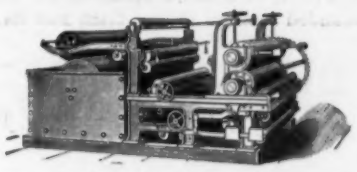

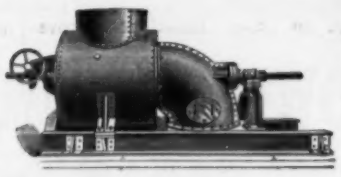

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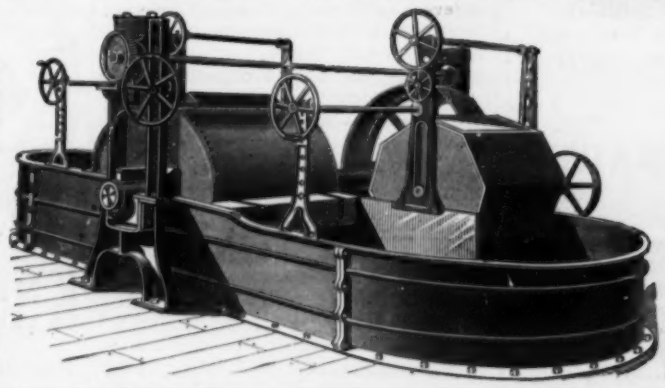

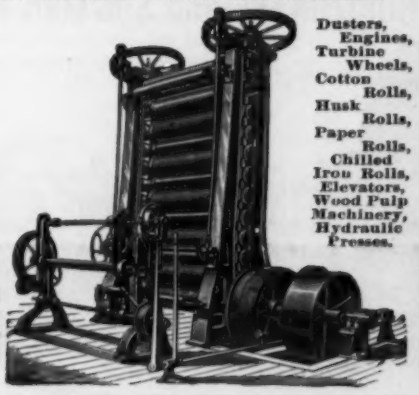

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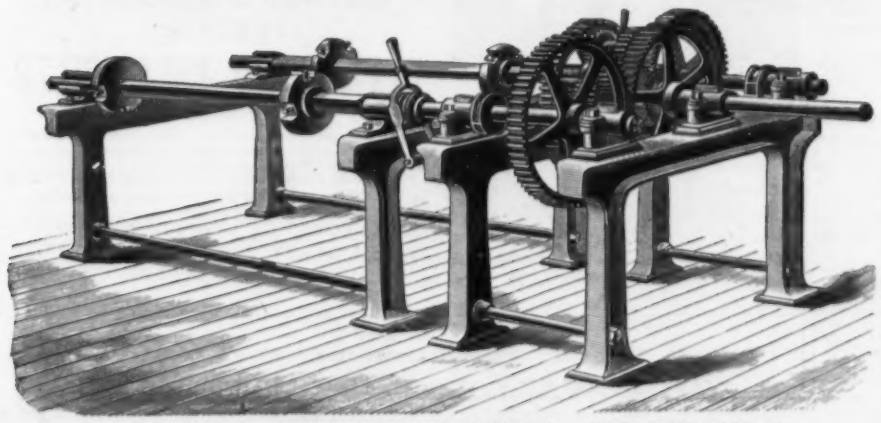

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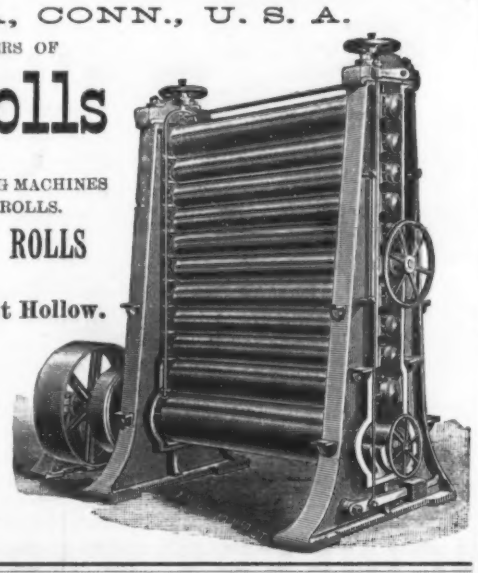

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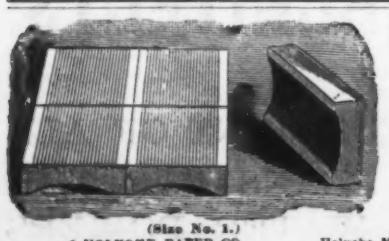

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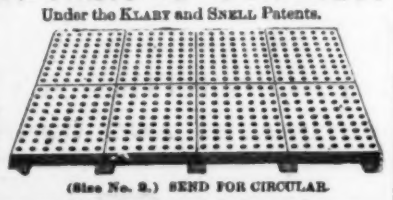

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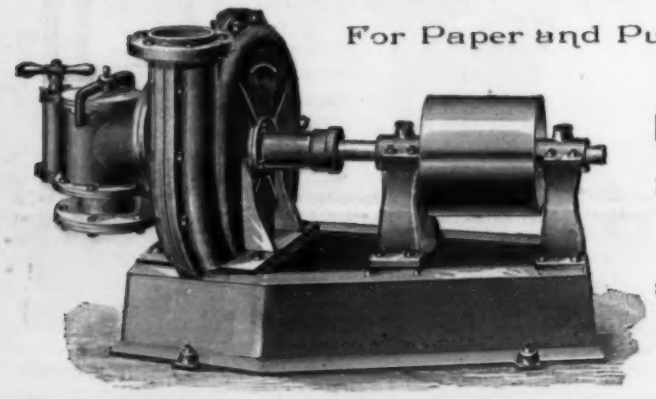

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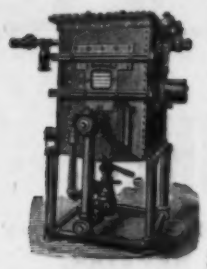

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CHAPTER III.—**Processes for Isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock, antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

CHAPTER V.—**Sizing and Loading.** Rosin; preparation of size; free alkali; free rosin; alum; analyses of alums; free acid; basic alums; sizing power; resinate of alumina; moss; casein; wax; starch; animal sizing; preparation and use; drying; loading; analyses of clays, agalite, pearl hardening, &c.; use; retention; ash; combined water; effect of alum and starch.

CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

CHAPTER VIII.—**Chemical Analysis.** Description of apparatus and methods for testing the purity and strength of all paper making chemicals, colors, &c.; common impurities and adulterants given; full description of methods of analysis for sulphite and soda liquors, bleach solution, alums, &c.

CHAPTER IX.—**Paper Testing.** Full account of the latest German methods for testing and classifying papers; determination of ash; kind of sizing; amount of sizing; free acid and chlorides; strength; proportion of ground wood; kind and condition of fibres.

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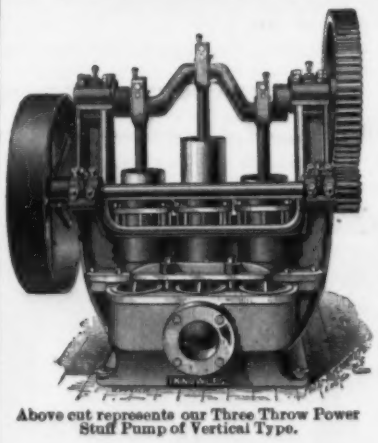

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L. G. Reynolds, of the Crume & Sefton Manufacturing Company, delivered an able, eloquent and patriotic address in Dayton on Memorial Day evening. The local papers complimented Mr. Reynolds by publishing the address in its entirety. It glowed with patriotism and the old soldiers voted it a gem.

C. F. Allen, of the Weston Paper Company, Greenfield, visited Dayton the past week.

E. B. Weston left this week in a hustle for Jacksonville, Fla.

"Col." Phil. Berry, of Carter, Rice & Co., smiled radiantly in Dayton this week.

Frank and Maurice Nixon, of the Nixon Paper Company, Richmond, Ind., transacted business here this week. The latter has just toured Michigan with fair results.

The three plants of the Friend & Fox Paper Company were sold last Friday afternoon at auction in Lockland to Mr. Rawson, representing the First National Bank, for $50,000. The mills included are those located at Rialto, Crescentville and Lockland, and the price is considered very, very low. The bank holds a $75,000 mortgage on the three plants. Mr. Rawson first bid $15,000 for the Lockland Mill and contents, $400 for the warehouse and $200 for the office fixtures. There was no bid on the stock on hand. The best bid for the dwelling and lot adjoining was $400, made by E. Henkley, of Lockland. Later the best bid on the three plants was $50,000 by Mr. Rawson, and the sale was formally effected.

M. V.

Fox River Valley.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., June 5, 1894.

Events of any particular importance in the paper making district have been very few for the past week. Trade is more quiet after the activity reported in my last letter. The Kimberly Mill, of the Kimberly & Clark Company, was shut down for several days. It had just completed a phenomenal run under heavy pressure to fill Western and Southern orders, and it was deemed advisable to look over the machinery. The straw wrapping department of the mill has been very busy for a considerable time past and is so still.

In spite of the acknowledged large consumption of news print, and in lesser degree of other papers of the less expensive grade, as evinced by the fact that all of the mills have been running at just about their full productive capacity, there seems to be a feeling that the outlook for trade this summer is not particularly good. The dull season is expected to prove unusually dull. A prominent Menasha manufacturer said to your correspondent yesterday that he would not be surprised to see a number of the mills shut down for a longer or shorter time in July. The abundant stage of water in the lake and river shows no signs of subsiding, and manufacturers have more water power than they can use. Some of the sluices in the dams have been opened during the past week to allow the surplus to escape.

The principal event of Memorial Day was the regatta of the Nodaway Boat Club of Neenah, composed of the younger element among the paper manufacturers. The members of the club this year purchased a fleet of six 21-footers, all of the same size and rig, and as some of them were novices at the work and a half a gale of cold, unfriendly wind was blowing, the race was fraught with extraordinary interest. It occurred off the Neenah shore of Lake Winnebago, and the bank was crowded with spectators on foot and in carriages. The race was won by James C. Kimberly, son of J. A. Kimberly. The boat owned by F. W. Orbison, of Appleton, also covered itself with glory and spray.

Early last Friday morning fire was discovered in the cupola of the boiler house of the Atlas Paper Company's pulp mill in this city. The fire originated in the chips and refuse that are blown from the wood room to the boiler house. The location made the blaze somewhat difficult to reach, but it was put out with only nominal damage.

The big 16 grinder pulp mill at the Combined Locks was shut down for four days last week pending repairs upon a pump which had become worn out. Orders of late have been very brisk at this mill. Three of the big paper machines are running, which take care of all the pulp which the ground wood mill can turn out.

A strong movement is on foot to establish a new school district at Combined Locks, and an application has been made to the town board to set aside a section in that locality as a separate district. There are now sixty children of school age at Combined Locks, and when the new sulphite plant is put in operation, enough more families will come there to raise the number of children to 100. The nearest school at present is two miles away.

A cutter girl named Rosa Hoffman, employed in the mill of the Kaukauna Paper Company, caught her dress in a revolving wheel last Thursday and was whirled around several times, and if the belt had not been promptly thrown off she would probably have been killed. As it was she was badly bruised about the limbs.

Thieves entered the office of Robert Pride at the Union pulp mill in Kaukauna on Wednesday night and carried off a suit of clothes, two mackintoshes, rubber boots, a machine felt and other articles.

Work upon the new mill of the Wolf River Paper and Fibre Company, which was suspended on account of high water, has been resumed.

Daniel Buchanan, of Chippewa Falls, Wis., was in town recently consulting with paper makers in the interest of a mine of exceptionally pure kaolin, of which he is the proprietor, and which he is now developing. The mine is located in St. Croix County near the Minnesota line. Mr. Buchanan brought samples with him and they were pronounced by manufacturers to be equal to any English clay and perfectly suitable for paper makers' uses. The clay is not yet on the market, but will be ere long, when additional apparatus for refining it is in operation.

Mr. and Mrs. W. B. Murphy departed on Sunday for New Brunswick, where they will visit friends and relations in Andover and St. Johns. Mrs. Murphy will be absent all summer and Mr. Murphy will stay a month or more, or until the patience of the Riverside Fibre Company, of which he is general manager, is completely exhausted.

Mrs. A. L. Smith, Jr., departed last week for the East. She will first visit her father at King's Ferry, N. Y., and then continue on to Madison, Me., to visit her husband, the general manager of the Manufacturing Investment Company, under whose direction the plant of the company at Madison is now being rebuilt.

Harry Frambach, of Kaukauna, returned home last week from a trip to the Midwinter Fair and the Pacific Slope generally.

W. W. Borthwick, of Holyoke, is in town.

H. T. Bartow, of Boston, arrived in town this week and is visiting his many friends in the Wisconsin paper making districts, making his headquarters in Appleton.

W. G. Chappell, of St. Louis, is visiting this valley.

E. E. McCord, of Chicago, was here for several days lately. He expects about the first of next month to take a three weeks' vacation trip to the East, visiting friends in Boston, New York, Philadelphia and Washington.

FOX RIVER.

Boston.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 FEDERAL STREET,
BOSTON, June 7, 1894.

Some weeks ago when Col. E. H. Haskell took the steamer for Europe it was given out that he went over the water just for "recreation" and a needed "rest," as he had been very closely confined to hard work and wanted to recuperate.

Now the representative of *The Paper Trade Review*, of London, happened to meet Col. Haskell in that English city and they had quite a talk together, judging from the interview published in that trade paper under date of May 25, a copy of which has just come to notice. In that interview Col. Haskell is reported to have said that his visit to Europe "was partly relative to the paper industry of the United States and the possible development of sales in Great Britain," but the colonel is not reported to have said that he was seeking "rest"—possibly he got all he wanted during the passage over.

When once in the English market Colonel Haskell went in to "beard the lion in his den" and tell the Englishmen just what we had to offer in news paper.

To quote from the published interview: "Colonel Haskell had much to say upon the growth of the exports in pulp to Europe, and he summarized the future by stating that if British and other makers were able to use American pulp at a profit the consumer of paper might be expected soon to learn to appreciate the use of the pulp dry as paper. 'What is the use,' said our visitor, 'of carrying a ton of pulp with 50 per cent. or 60 per cent. of water? Freightage on that alone makes a very fair living profit upon the industry, and recognizing that prices to-day are pretty well up, and quite setting aside sentiment, which will always favor British made paper against American, it must surely strike business men that while freight is being paid on nearly 60 per cent. of water, and a further loss sustained in handling the pulp of 5 per cent., directly prices fall and competition increases keenly, American producers will begin to convert their pulp into paper and benefit by the economy of no longer shipping water. In regard to the pulp trade it amounts to this, that on every "short" ton of pulp from the States imported by Great Britain, freightage has to be paid on about 1,200 lbs. of water.' 'Europeans,' said Col. Haskell, 'generally admitted that American mills were producing a very fine news pulp, and quite a good trade was being done from Portland and Boston.' He would not, however, like to look upon the trade as other than ephemeral. Moisture allowances would, he thought, always be a ground for controversy, whether ground wood or chemical pulp. 'Of course this question had to be adjusted to the satisfaction of the buyer, and the seller if not satisfied with the adjustment, would not be prepared to sell any more. The maker who sells 40 per cent. dry expects to be paid for 40 per cent., and the difference of 2 per cent. or 5 per cent., when in the form of a complaint and non-existent, represents the actual profit. The lowest priced pulp must not always be regarded as the cheapest. The character of the pulp carries the sale quite independent of moisture. For extra grade, 1.60 cents per 100 lbs. have been obtained at Fleetwood, equal to £6-8. Prices also range down to £5.'

"We were shown by our visitor a sample of American sulphite from spruce, and unbleached, which he described as handsome, felty, and of excellent color, and he was right. This pulp is delivered at 2¾ cents per pound at the American mill, or about 2⅝ cents at point of delivery.

"'A market of a permanent character,' according to Mr. Haskell, 'would be found in Europe for American paper. American pulp being in demand it is quite clear that American producers, if equipped with a modern paper making plant, would find it better for them, from an £ s. d. point of view, to ship the pulp dry as paper, than endeavoring to compete with the Scandinavians with moist pulp. The economies of cheap paper production from mechanical wood pulp had been so well considered of late, that an export trade may be fairly anticipated. In fact this step can be looked upon as inevitable,' continued Mr. Haskell. 'This will undoubtedly affect the news mills of Lancashire and elsewhere, which have not the natural advantages of several of our great American plants, and will probably oblige them to make a higher grade of paper, in place of ordinary news paper. In contrast with the most modern American news mills—for instance, the one at Rumford Falls, which now produces about 60 tons a day, and has been designed to produce 100 tons per day—English mills have not the magnificent water power nor the enormous tracts of cheap wood, therefore Lancashire could not stand against these advantages, and practically, as regards the English market, the freight from Boston per steamer to English ports is not much dearer than ordinary railway carriage by either the Midland or Great Northern or other lines.

"'The American trade,' points out Col. Haskell, 'must certainly grow, and become a solid factor in all future reckonings upon the prospects of the market. While the price of news paper is ruling very low here for the present, and while the news mills here will make every effort to retain the trade, the absence in England of natural advantages, of cheap power, and the growing scarcity of wood, which must increase the cost of wood pulp, must ultimately operate in favor of the great American news plants, which possess both cheap power and cheap wood.'"

Trade visitors have not been very numerous the past week, those reported being H. G. Fuller and Mr. Bickford, of Portland, Me.; F. S. Lyman, of Augusta, Me.; F. C. Whitehouse, of Brunswick, Me.; Oscar Hartwell, of Nashua, N. H.; C. E. O'Hara and G. F. Bartou, of Windsor Locks, Conn.; Charles S. Barton and Mr. Williams, of Worcester, Mass.; Mr. Sturtevant, of Holyoke, Mass.; C. S. Mayo, of Lawrence, Mass.; E. W. Blackhall, of Buffalo, N. Y.; C. A. C. Bruce, of Chatham, N. B.; George Briggs and Leon Gottheil, of New York.

K. B. Fullerton, of New York, was in town yesterday, en route, to Egypt down on the Cape, where his family will spend the summer, coming over with Mr. Fullerton from New York to be located in their summer residence.

Charles T. Pulsifer, of Pulsifer, Jordan & Co., had a narrow escape from serious injury while out driving on Tuesday evening in Newtonville, where he resides. The horses which he was driving became frightened at the electric cars, but Mr. Pulsifer kept control of them until the yoke of the team broke, when the animals became unmanageable and Mr. Pulsifer jumped from the carriage. Jumping out certainly saved him from serious injury, as the horses dashed along, and running into a telegraph pole demolished the carriage; they were considerably cut and bruised. Mr. Pulsifer was seen to-day at his Congress street paper house, but he showed no effects of his mishap, although feeling, as he said, a little sore.

Charlie Bryant, of the A. Storrs & Bement Company, was considerably bruised up on the polo grounds last Friday, so much so that his friends did not recognize him for a few days. One of his eyes is in deep mourning with heavy borders of black, his cheek looks like a 10 cent balloon, while down his upper lip runs a cut now held together by a couple of stitches. It all came from pony polo. Mr. Bryant is an enthusiast at this game and one of the expert players of Boston, and just as soon as his face recovers its former beauty he will take to the polo field again. His present facial disfigurement is due to the fact that the mallet of a player aimed at the ball caught Mr. Bryant in the right cheek. The other player was riding foul and he made a foul play, although to see Mr. Bryant one would say it was a "base hit."

The Boston office of the New England Sulphite Digester Company is being removed from Kingston street to No. 220 Devonshire street, Room 10, and the company will be at home in its new office during the coming week.

The Katahdin Pulp and Paper Company, of Lincoln, Me., will have its Boston office at the same place, No. 220 Devonshire street, Room 10, which will be under the management of Charles Curtis, manager and sales agent of the company.

The insurance on the plant of the Howland Falls Pulp Company has been adjusted. The property was insured for $179,000, and the amount received from the insurance company is said to be close on to $135,000. The company held its annual meeting at Portland, Me., last Tuesday, electing the following named officers: Charles W. Coffin, president; George E. Keith, treasurer; N. M. Jones, secretary and manager; Clarence Hall, clerk; directors, Charles W. Coffin, George E. Keith, A. W. Benson, Thomas B. Draper, W. H. Stacey, George A. Russell and Charles Curtis. The question of rebuilding was left with the directors to decide, and if proper arrangements can be made the new plant will be located at Howland Falls, Me., on the site of the old mill.

N. M. Jones, the company's manager, has prepared plans for a new plant. These were shown to your correspondent at the company's Boston office yesterday.

The plans call for brick buildings, covering an area of 186x230 feet, with six digesters, giving a daily capacity of 30 tons of sulphite fibre, the plant to cost $150,000.

DELESDERNIER.

Holyoke.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., June 7, 1894.

The business of the week now drawing to a close has been along the same lines which have been followed for some time. The situation is no better, nor is it any worse. The mills could accommodate much more business and yet not reach their capacity. There is very little hope for improvement at present, and a very quiet summer is anticipated.

There is some cutting going on, especially where prospective orders are in view, and it is said that some standing orders have recently changed hands, where a lower figure has been offered to secure the business.

I hear that some of the mills are being affected by the miners' strike in the soft coal regions, and that a number of them have been obliged to use hard coal. As most of our own mills depend on their steam plant more or less, this coal famine will be felt more seriously than it would have been a few years ago before the seasons of drought. As the mills are not running full time, however, the trouble will not be as plainly felt.

The water will be drawn from the canals on June 30 and will be let in again on the morning of July 5, so that the annual shut down will not cover a full week, as was at first anticipated. The repairs and improvements will not be very extensive this year. The Whiting Paper Company will expend some money on its Nos. 1 and 2 mills, and the George C. Gill Paper Company expects to build an addition to its engine room. The George R. Dickinson, Beebe & Holbrook, Chemical, Newton, Albion and other companies will all do some necessary repairing, but none of the operations will be extensive.

The Holyoke Calender Roll Company is the latest local industry, and the organization will soon be effected. The capital stock will probably be from $6,000 to $10,000 and the company hopes to be ready for business inside of two months.

Two more local corporations have made returns of their condition. The Norman Paper Company has this report: Fixed capital, $300,000; capital paid in, $300,000. Assets: Land and water power, $75,000; buildings and machinery, $400,226; cash and debts receivable, $44,575; manufactures and merchandise, $171,522; total, $691,324. Liabilities: Capital stock, $300,000; profit and loss, $2,572; savings bank loan, including stockholders' loans, $388,751; total, $691,324. Holyoke Paper Company: Fixed capital, $500,000; capital paid in, $500,000. Assets: Land and water power, $279,000; machinery, $246,000; cash and debts receivable, $132,140; manufactures and merchandise, $101,378; total, $758,518. Liabilities: Capital stock, $500,000; debts, $104,000; profit and loss, $38,016; reserve for depreciation, $113,497; total, $748,518.

Two Holyoke "boys," Thomas F. and Herbert Webb, have gone to Penobsquis, N. B., where they have leased a paper mill having one machine which has made manilla paper. The Webbs have had a thorough training in the business and they ought to succeed. Thomas came from Scotland many years ago and has been a valued employee of the George R. Dickinson Paper Company. Herbert has been connected with a mill in Oregon for some time.

Robert Lang, who has been managing B. F. Perkins & Son's paper mill at South Hadley for two or three years, has resigned to accept a similar position in a Colorado mill.

George D. Monk, of this city, has established a job printing office at Greenfield as a branch of the *Transcript* Publishing Company. This is one of the results of the printers' strike, the concern's job office being badly tied up on account of the strike.

Eagle Lodge of Papermakers will, as usual, have its annual picnic and field sports at Lake Congamond, on July 4.

Three weddings of interest to many Holyoke people are on the tapis. Councilman E. N. White, of the Smith & White Manufacturing Company, will wed Caroline Bond at Worcester to-day, and the wedding of C. H. Davenport, Jr., of the Valley Paper Company, takes place to-day at St. Paul. N. C. Mansir, a local publisher, will be united to Louise Baush one week from to-day.

H.

Hard Wood.

A recent issue of the *Timberman* contains the following legal decision in regard to what constitutes "hard wood." A certain man had a contract with a railroad company to deliver "hard" cord wood and he delivered poplar in part fulfillment of the contract. The railroad company objected, but the contractor won his case in court in consequence of the judge's decision that botanically any tree that had a leaf as distinguished from a needle was a hard wood, regardless of what the actual texture of its fibre might be. This is, as far as we know, along a new line, but it is strictly in accord with other decisions based upon the technical and commercial nomenclature of the wood. There may be no particular reason for saying that Lombardy poplar, or basswood, or cottonwood is a hard wood, but such it is commercially, as decided by the courts, and those dealing in timber may as well understand it. If this new decision, based upon botanical considerations, is sustained it will merely add strength to the old position.

Christopher Clarke, former business manager for Richard K. Fox, publisher of the *Police Gazette*, New York, claims Fox has defamed him, and he has brought suit in the Brooklyn courts for $25,000 damages. Mr. Clarke's complaint sets forth that for nearly ten years he was Mr. Fox's general manager, that his duties included not only the general management of Mr. Fox's paper, but the handling of Mr. Fox's money with a power of attorney to make investments as he saw proper in the interest of Mr. Fox, when that gentleman was absent. Mr. Fox was absent a great deal. Each summer he visited Europe, going in June and returning in the autumn. Mr. Fox was in Europe as usual in the summer of 1892, and in his absence a large amount of money accumulated in the hands of Mr. Clarke. Mr. Clarke was casting about for something good in which to invest the money when he took Robert F. Tremper, the superintendent of circulation, into his confidence. They decided to invest Mr. Fox's money in Annexed District real estate, and Mr. Clarke purchased thirty acres of land for $30,000. It was immediately back of Westchester village, and Lewis & Holder, a Tremont real estate firm, negotiated the sale. Up to that time Mr. Fox's real estate operations had been confined to Brooklyn, and when he returned from Europe he was displeased. There was considerable temper displayed, and Mr. Clarke, Mr. Tremper and some others of the office force left Fox's employ. Mr. Clarke claims that since then Mr. Fox has asserted that he was swindled by Mr. Clarke; that that gentleman entered into a deal in the Westchester purchase, and that he bought the property at a much lower figure than $30,000, and that he pocketed the difference. It is for this that $25,000 damages is asked. It is said that Mr. Tremper is about to institute a similar suit.

While brass has a strength of 18,000 to 22,000 pounds per square inch that of phosphor bronze is 45,000 pounds. Phosphor bronze is composed of alloys of copper, tin and phosphorus, the tin being mixed with the copper in different proportions according to the degree of hardness or toughness required, the harder metals containing of course the larger percentage of tin—the phosphorus being added to clarify or thoroughly deoxidize the metal.

New Inventions—XXXVIII.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY GEO. DAMON RICE.

The fact that the more paper stock is subjected to wear in a frictional way, the tougher it becomes, has led parties into the plan of using paper stock for floor tiles. These are usually made of stone, marble or cement, but are more or less liable to wear off by constant use.

The expense of making mosaic blocks and ornamental tile effects is large. Only the residences of wealthy persons have tile floors of modern origin and design; but now that the promoters of the new method of making tiles of all shapes and colors from paper pulp are successful, it would seem that the novel and attractive tiling may soon be had so low in price that anyone can afford to have it. Depots, hotels, public buildings, &c., are often floored with slabs of expensively cut rock material; and although the effect produced is very good the expense is something startling. It is estimated that the new process of tile making from paper material will reduce the cost just about 70 per cent. This lowers the cost of a floor covering for halls, &c., to less than carpets and even mattings; furthermore, the exceedingly great toughness of the paper fibre prevents the wearing off of the tiles. The more they are walked over the smoother and harder they become.

The preparation of the stock for the process of working the tiles is kept secret by the inventors of the scheme, and could not be obtained by your correspondent. The patents could not be procured on the process of shaping the tiles, as it closely resembles brick making; but the inventors are protected by the secret ingredients used in the composition of the pulp, and so have given permission to publish this notice.

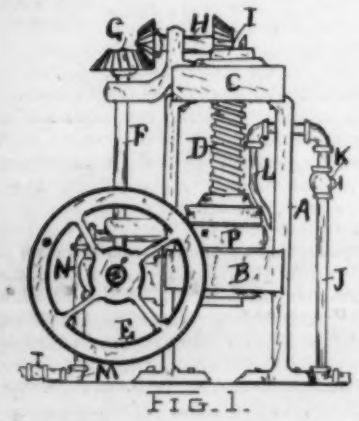


FIG. 1.

THE SHAPING MACHINE.

The pulp is prepared in a big tank and while in liquid form is run into a machine like that illustrated above through the pipe marked J in the cut. The framework of the machine is indicated by A, and the braces are shown by B and C. A powerful screw, D, is revolved by turning the wheel E, and this wheel communicates motion to the shaft F and the gears G. The latter turn the shaft H and the gear I, which meshes with the gear in the top of the screw, thus turning the same. There is a mold at P in the diagram. Inside of this the form of the design of tile is cut, and so when the pulp is run into the mold through the pipe J, governed by the valve K, then through the feed L, any quantity desired is obtained. Of course just enough is run in to fill the mold, the latter being kept highly heated by steam pipes, which circulate through it and are fed by the main steam pipe marked N and M. Thus the mold, being filled with pulp and highly heated by the steam heat, the pulp at once begins to dry. The big wheel is turned and the screw pressure comes down on the top of the moid with great force. The screw is turned until the tile in the mold is pressed as hard and firm as a rock. The whole thing stands a moment until the tile is dry, when the latter is removed and is ready for use after being smoothed and polished. The immense pressure drains the moisture from the tile at once, so that the drying is quickly effected. The tiles are made of all shapes and colors. This is effected by dyeing the pulp. A pattern or two of flooring effects, of which the inventors now have samples, is shown below:

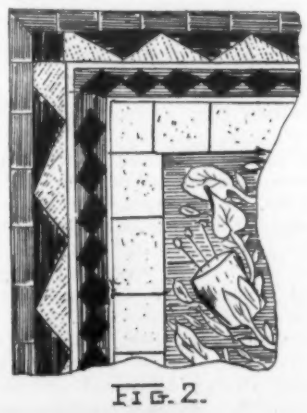


FIG. 2.

FIG. 3.

PAPER TILES FOR FLOOR USE.

In these diagrams Fig. 2 is a corner sample of a floor design. The different shades and variously shaped tiles are indicated by the shaded lines. The figure in the centre is obtained by a compression of a figure stamp upon the tiling just before it gets thoroughly dry. The indentures are only slightly made, so that a smooth floor results, while at the same time the figures of the design can be seen readily. Fig 3 indicates a specimen which has been pressed out with a view of showing what can be done with the pulp. The pressure is so heavy upon these pieces that the figures are made as hard and as firm as metal.

Loose rivets are generally the effect of overheating. They should be cut out and new ones driven; but in case the rivets are too small for the thickness of the plates, and especially in a girth seam, the rivets must be replaced by others of a larger diameter.

Manufacture of Porous Sulphate Alumina.

A new process for making sulphate of alumina is carried on in the first place in the usual well-known way by treating oxide of aluminum either in a pure state or as contained in various kinds of clay, with sulphuric acid and evaporating the clear solution until it holds from 14 to 17 per cent. of oxide of aluminum, and then allowing it to solidify on a suitable surface. This method generally produces an article of such dense and impervious structure that it is necessary to break and grind it to make it readily soluble in water.

To overcome this difficulty and produce a light and porous article, not requiring expensive and troublesome grinding, is the object of this invention. The same thing has heretofore been done by the aid of bi-carbonate of soda mixed in among the sulphate of alumina, as it solidified. By the action of sulphuric acid in the sulphate of alumina on the bi-carbonate of soda carbonic acid is evolved, which, rising through the mass, is arrested by the latter hardening and causing a porous condition. The more evenly the gas bubbles are divided in the mass, the quicker and more rapid is the solution in the water. An objection to the old method with bi-carbonate of soda is that it introduces sulphate of soda, which is a useless addition.

The introduction of any inert substance is avoided, and an article more porous, and consequently more easily dissolved, is produced by allowing the hot concentrated solution of sulphate of alumina, when ready to be run off and solidify upon cooling, to flow from the evaporating tanks onto a floor or flat surface composed of zinc or aluminum plates suitably joined to each other and to the foundations. The hot sulphate of ammonia solution when striking the surface of the metal causes a lively evolution of hydrogen gas, which, rising through the solidifying mass, distributes itself all through it. This gas is arrested before it has a chance to escape by the mass hardening, and the result is a "cake" of a very uniform porosity and great lightness. In this process a small amount of zinc or aluminum is taken up by the sulphuric acid, forming sulphate of zinc or alumina respectively. The sulphate of alumina is of course no objection. Neither can the sulphate of zinc be said to constitute an objection to the "cake," as even sulphate of zinc has its value as a sizing agent. It is believed that the article thus produced is more easily solable in water than any other so far made. The necessity for grinding is entirely obviated, as the article dissolves almost as fast as thrown into the water.

The chemical laboratory of the Bavarian Industrial Museum publishes the following recipe for a machinery polish that has proved excellent for polishing machinery parts and keeping them bright. The polish is a pasty mass, and consists of a mixture of 15 parts of turpentine oil, 25 parts of stearine oil, 25 parts of the finest crocus, and 45 parts of the finest animal charcoal. To this mixture add alcohol until it becomes fluid, and then with a brush apply it to the articles and machine parts to be cleansed. After the evaporation of the alcohol the coating is to be removed with the aid of a dry mixture of 45 parts of animal charcoal and 25 parts of crocus, rubbed on. The polished parts will then appear clean and bright.

Wood Pulp, Soda AND Sulphite,
IMPORTED BY
G. RAU, TIMES BUILDING, New York.
SOLE AGENT FOR THE U. S. AND CANADA:
ROZÈS AINÉ & FRÈRES, Agen,
Well-known Packers of Linens and Cottons.
RA TRADE MARK.

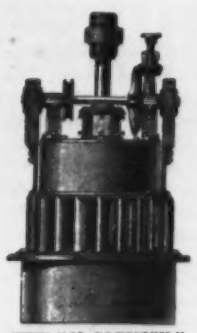
1892 1894
SOS
COMPARATIVE PRODUCTION
For ONE DAY:
May 1st, 1892, ... 1,199,000
May 1st, 1894, ... 2,591,000

CHRISTIANA MACHINE CO.,
Christiana, Pa.,
MANUFACTURERS OF
THE BALANCED GATE
Turbine Wheel.

Suitable for Light or Heavy Service.
Globe Outer-Casts and Special Wrought or Cast Iron Flumes,
SUITABLE FOR ANY SITUATION.
GEARING of all kinds, SHAFTING, PULLEYS and everything required for a complete POWER PLANT.
Satisfaction Guaranteed. Designs and Estimates furnished on application. Send for Catalogue.

GOULDS PUMPS Are Better
For Water Supply and Fire Protection
In Mills, Factories, Villages, &c. Reduce your fire risk (and insurance) by increasing your protection.
Goulds Rotary Fire Pump
Is one of the most reliable safeguards. May be arranged for direct shaft, belt or frictional gear connection. Send for Catalogue "Efficient Power Pumps and Applications."
THE GOULDS MANUFACTURING CO.,
Manufacturers of PUMPS and HYDRAULIC MACHINERY,
Works & Main Offices, Seneca Falls, N. Y., U. S. A. Warerooms: 16 Murray St., New York City.
Or Nearest Branch Agency—THE GOULD CO., 22 and 24 North Canal St., Chicago, Ill.
SMITH & WINCHESTER CO., 19 to 27 Wendell St., Boston, Mass. WOODIN & LITTLE, 312 & 314 Market St., San Francisco, Cal.
S. O NELSON MFG. CO., Eighth & St. Charles Streets, St. Louis, Mo. L. M. BATES, 321 Vine Street, Philadelphia, Pa.

McCORMICK AND SUCCESS TURBINES,
VERTICAL OR HORIZONTAL.



THE "McCORMICK."

The McCORMICK Turbine gives more power per diameter with a higher percentage of useful effect from the water used than any other water wheel heretofore made. All sizes, both right and left hand, tested in the Holyoke testing flume.

The SUCCESS Turbine, long and favorably known in the paper trade as a first-class water wheel, possesses valuable features found in no other turbine, and gives a high percentage of useful effect from the water used.

THE McCORMICK and SUCCESS TURBINES are especially adapted for driving Paper and Pulp Mills and are extensively used by the largest manufacturers in the United States and Canada. Parties using wheels which are unsatisfactory and those contemplating the improvement of powers will find it to their interest to confer with me, as I am willing to guarantee results where others have failed, no matter what make of turbines has been tried.

State requirements and send for catalogue.

Heavy Power Transmitting Machinery a Specialty.

S. MORGAN SMITH, York, Pa.

THE "SUCCESS."

THE THROOP PERFORATING CO.
SHEET METALS
OF ALL KINDS PERFORATED TO ORDER FOR ALL PURPOSES,
80, 82 & 84 Terrace, BUFFALO, N. Y.

CHAS. B. PRIDE, APPLETON, WIS.
Mill Architect and Contractor.
Specialties: PAPER MILLS AND SULPHITE FIBRE MILLS.
Plans Furnished and Mills Constructed on shortest possible notice.

ESTABLISHED 1833. INCORPORATED 1891.
STANDARD STAVE & COOPERAGE CO.
MANUFACTURERS OF
CEDAR, CYPRESS, PINE OR OAK
RESERVOIR TANKS
OF ANY SHAPE OR CAPACITY, FOR
PAPER AND PULP MILLS.
19 WHITEHALL STREET, NEW YORK. OFFICES: 160 STATE STREET, BOSTON.
—Illustrated Catalogue upon Application.—

ALUM!
THE MERRIMAC POROUS ALUM is unsurpassed for purity and good results.
All other grades of Alum for paper makers' use and for filtering purposes. Address
MERRIMAC CHEMICAL CO., 13 Pearl Street, Boston.

Imports and Exports.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED JUNE 1, 1894.

An. Colors..	634	$41,138	Paper.....	347	$14,976
Alum.....	—	—	Steel Pens...	8	6,309
Alum's Cake	—	—	Stationery...	13	1,014
Bl. Powders	642	12,984	Slate Pencils	—	—
Soda Ash...	6,883	23,668	Clay.....	—	3,517
Soda, Caus.	595	8,312	J'te B'ts, &c.	12,298	51,085
Soda, Sal....	—	—	P. Hangings	12	893
Soda, Hypo.	—	—	P'p'r Stock..	6,521	36,553
Ultramarine	67	2,475	Terra Alba..	—	—
Books.....	286	36,992	Waste.....	—	—
Newspapers.	305	11,185	Wood Pulp..	1,808	11,911
Engravings.	65	5,354			
Ink.....	111	817			
Lead Pencils	4	149	Totals....	30,599	268,622

Imports General Merchandise for the week ended June 1, 1894.....$7,509,993

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO JUNE 5, 1894.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria...	1,949	....	....	....	....
Antwerp.....	296	259	678	....	6,691
Aspinwall....	90	....	....	....	....
Bordeaux.....	548	....	....	....	....
Bremen.....	532	....	....	....	4,003
Bristol.....	....	....	....	....	2,871
Buenos Ayres.	26	....	...	....	....
Calcutta.....	....	....	....	....	2,797
Cent. America	60	....	....	....	....
Christiania....	....	....	396	....	474
Copenhagen..	353	....	650	....	913
Dublin.....	....	186	....	....	....
Dundee.....	....	....	....	....	658
Dunedin.....	....	....	....	....	183
Fiume.....	....	....	99	....	....
Geestemunde.	252	....	....	....	1,309
Genoa.....	....	....	...	....	3,256
Glasgow.....	288	77	....	....	187
Gothenburg..	....	....	92	....	....
Hamburg.....	1,178	103	478	....	3,516
Hamilton.....	....	....	....	....	42
Hiogo.....	7,119	....	....	....	....
Hong Kong...	43	....	....	....	....
Hull.....a	1,706	185	904	....	9,015
Kobe.....	27,285	....	....	....	....
Leghorn.....	1,520	....	....	....	....
Leith.....	....	159	....	....	....
Liverpool.....	419	740	....	....	11,057
London.....	2,931	1,357	20	....	7,483
Marseilles....	96	....	....	....	473
Nassau.....	48	....	....	....	....
Newcastle....	....	73	....	....	2,494
Rio.....	26	....	....	....	....
Rotterdam....	480	....	414	....	4,919
Southampton.	....	....	....	....	160
Stettin.....	2,191	....	596	....	5,761
Trieste.....	....	....	49	....	....

a. Including 347 bales cotton waste.

NEW YORK IMPORTS.

FROM MAY 30 TO JUNE 5, 1894.

Paper Stock.

James Pirnie, Westernland, Antwerp, 209 bs. bagging.
Castle & Gottheil, by same, 9 tons chemical fibre.
Oelrichs & Co., Braunschweig, Bremen, 73 bs. manillas.
J. W. Mason & Co., Chicago City, Bristol, 751 bs. manillas.
Paper Fibre Company, Croft, Dundee, 47 bs. manillas.
F. Bertuch & Co., Slavonic, Gothenburg, 40 tons chemical fibre.
Castle & Gottheil, Taormina, Hamburg, 24 tons chemical fibre.
F. Bertuch & Co., Galileo, Hull, 15 tons chemical fibre.
Train, Smith & Co., by same, 230 bs. bagging.
J. W. Mason & Co., Bovic, Liverpool, 355 bs. manillas.
James Pirnie, by same, 243 bs. bagging.
J. W. Mason & Co., Runic, Liverpool, 307 bs. manillas.
H. McInnes, by same, 234 bs. bagging.
G. Stratford, Mississippi, London, 117 bs. manillas.

Paper.

Photo Material Company, Westernland, Antwerp, 11 cs.
A. H. Abbott & Co., by same, 7 cs.
Scovill & Adams Company, by same, 4 cs.
Charlier & Schuler, by same, 12 cs.
Tarrant Company, Saale, Bremen, 1 cs.
E. & H. T. Anthony & Co., Dubbeldam, Rotterdam, 14 cs.
G. W. Sheldon & Co., by same, 34 bs.
H. S. Leclercq, by same, 7 cs.
E. & H. T. Anthony & Co., Britannic, Liverpool, 1 cs.
Nevius & Haviland, by same, 3 cs. hangings.
R. C. Thibaut, Furnessia, Glasgow, 11 cs. hangings.
Marcus Ward & Co., Galileo, Hull, 7 cs.
John Hunter, by same, 15 cs.
W. Seyd, Othello, Antwerp, 6 cs.
L. De Jonge & Co., Umbria, Liverpool, 1 cs.
J. Dickinson & Co., by same, 10 cs.
A. C. Bulkley, by same, 1 cs. hangings.
Dinglestedt & Co., Rhaetia, Hamburg, 10 cs.
B. Lawrence Stationery Company, by same, 11 cs., 3 bs.
L. De Jonge & Co., by same, 2 bs., 7 cs.
W. Heuermann, by same, 25 cs.
Kupfer Brothers, Werkendam, Rotterdam, 9 cs.
J. W. Hampton Co., Noordland, Antwerp, 1 cs.
L. De Jonge & Co., by same, 20 cs.
G. W. Sheldon & Co., by same, 20 cs.
Oscar F. Melvin, by same, 7 cs.

BOSTON IMPORTS.

FROM MAY 31 TO JUNE 6, 1894, INCLUSIVE.

Paper, &c.

G. S. Teinzian, Scythia, Liverpool, 1 cs. paper.
Carter, Rice & Co., by same, 8 cs. paper.
Wm. Guild & Co., by same, 5 bs. periodicals.
T. F. Bumstead & Co., by same, 1 cs. paper hangings.
River Spinning Company, Govino, Antwerp, 21 cs. paper tubes.
F. Parsons, Durham City, London, 3 bs. paper hangings.

Paper Stock.

Train, Smith & Co., Govino, Antwerp, 131 bs. rags.
Castle & Gottheil, by same, 120 bs. rags.
Horace Dutton & Co., by same, 231 bs. flax waste.
C. A. Cheney, Angloman, Liverpool, 144 bs. manillas.
Wheelwright Paper Company, Durham City, London, 72 bs. waste papers.
True & McClelland, Roman, Liverpool, 52 bs. waste papers.

Sizing.

C. A. Cheney, Angloman, Liverpool, 540 bags.
Thomas Groom & Co., by same, 82 bags.
J. W. McClintock, Scythia, Liverpool, 127 bags.

Bleaching Powder.

J. L. & D. S. Riker, Roman, Liverpool, 174 cks.
J. L. & D. S. Riker, Angloman, Liverpool, 178 cks.
A. Klipstein, Govino, Antwerp, 48 cks.
Mason, Chapin & Co., by same 61 cks.

Soda Ash.

Wing & Evans, Scythia, Liverpool, 800 bags.
Jerome Marble & Co., by same, 84 cks., 100 bags.

Soda Crystals.

Warren & Co., Angloman, Liverpool, 140 bbls.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED JUNE 2, 1894.

Books.

The Library Company, British Princess, Liverpool, 1 cs.

Paper.

Order, British Princess, Liverpool, 1 cs. photo.
A Hastings & Co., by same, 4 bs.
Keystone Blue Paper Company, Maine, London, 18 cs.
O. W. Sprint, by same, 10 bs. printed.

EXPORTS of Paper, &c., from New York for the Week Ended June 5, 1894.

BOOKS, cases, to British West Indies, 7; British Australasia, 9; Mexico, 10; Venezuela, 1; Argentine Republic, 9; British Honduras, 1; Colombia, 2; Gothenburg, 1; Havre, 5; Japan, 1; Malmo, 3; Newfoundland, 19; Rotterdam, 1; Rome, 8.

PAPER, to Cuba, 900 pkgs. and 6,000 rms.; British West Indies, 633 pkgs.; Venezuela, 29 cs.; Colombia, 160 pkgs.; London, 277 cs.; Liverpool, 55 cs.; Hayti, 3 pkgs.; Hamburg, 81 cs.; Dutch West Indies, 12 pkgs.; New Zealand, 56 pkgs.; Antwerp, 1 cs.; Argentine Republic, 10 cs.; Berlin, 1 cs.; British Australasia, 367 pkgs.; Central America, 17 pkgs.; Christiania, 30 cs.; Hull, 3 cs.; Lisbon, 3 cs.; Mexico, 143 pkgs.; Newfoundland, 36 pkgs.; Porto Rico, 60 pkgs.

STATIONERY, cases, to Cuba, 17; Colombia, 17; London, 11; British Australasia, 56; Venezuela, 15; Liverpool, 4; Dutch West Indies, 4; British West Indies, 8; Central America, 16; Ecuador, 1; Argentine Republic, 5; British Honduras, 1; Christiania, 1; Genoa, 1; Hamburg, 14; Havre, 1; Mexico, 5; Newfoundland, 17; New Zealand, 1.

WALL PAPER, bales, to Antwerp, 78.

PAPER BOXES, cases, to Liverpool, 19.

AGGREGATES AND VALUES.

Paper, reams.....	6,000	$650
Paper, pkgs.....	2,590	10,369
Paper, cases.....	376	3,981
Books, cases.....	67	4,340
Stationery, cases.....	192	7,435
Rosin, bbls.....	1,761	6,034
Totals.....	10,995	$32,809

Exports General Merchandise for the week ended June 5, 1894..... $6,449,714

When to Stop Advertising.

An English journal requested a number of its largest advertisers to give their opinions concerning the best time to stop advertising, and the following replies were received:

When the population ceases to multiply and the generations that crowd on after you and never heard of you stop coming on.

When you have convinced everybody whose life will touch yours that you have better goods and lower prices than they can get anywhere else.

When you perceive it to be the rule that men who never advertise are outstripping their neighbors in the same line of business.

When men stop making fortunes right in your sight solely through the direct use of the mighty agent.

When you can forget the words of the shrewdest and most successful business men concerning the main cause of their prosperity.

When every man has become so thoroughly a creature of habit that he will certainly buy this year where he bought last year.

When younger and fresher houses in your line cease starting up and using the newspapers in telling the people how much better they can do for them than you can.

When you would rather have your own way and fail than take advice and win.

When nobody else thinks it pays to advertise.

Mechanical Draught.

"Mechanical Draught" is the subject of a paper which William R. Roney will present at the Montreal meeting of the American Society of Mechanical Engineers. The importance of good draught, he says, natural or artificial, has been recognized. The wonderful stimulus which the development of electrical industries has given to the building of compound engines has necessitated higher boiler pressures, and this in turn has greatly increased the use of boilers of the water tube type. To obtain a high furnace temperature requires draught sufficiently strong to deliver an abundant supply of oxygen to the furnace.

Two well-known means of accomplishing this are natural draught produced by a column of heated gases in a chimney of suitable proportions, and forced draught obtained by mechanically creating a pressure under the grates with a blower or fan. A third means less widely known is mechanical exhaust or induced draught, produced by a suction fan so arranged as to draw the waste gases from the furnace and discharge them into a short stack sufficiently high to clear the roof of the building. Only within a few years has this mechanically induced draught been much installed on a large scale. Previously it had been used to help out an insufficient or an overloaded chimney.

The largest and most successful applications of mechanically induced draught have been made in connection with feed-water heaters, designed to utilize the waste heat of the flue gases, and known as fuel economizers. On account of the reducing effect on the draught caused by lowering the temperature of the gases and retarding their flow by the mechanical interference of the pipes, the economizers ought not to be attached to a chimney less than 200 feet high. High chimneys are excessively costly, require much space for foundations, limit the maximum capacity of the boiler plant, and moreover a certain minimum temperature of flue gases is required to produce an effective draught and to operate the boilers economically, and this fact limits the amount of economizer heating surface which can be used, and consequently the fuel saving obtained by use of the economizer.

These objections to tall chimneys do not hold with mechanical draught. The first cost is 75 to 80 per cent. less; the fans and short stacks require little foundations and the space saved can be utilized for economizer, &c.

With the mechanical exhaust draught it is possible to lower the temperature of the gases to a point where even the draught of a very tall chimney would be destroyed. Mr. Roney discusses the use and abuse of fuel economizers, and says that a mechanical draught plant, properly designed, can be made so reliable that the boilers cannot be shut down by any ordinary accident. The power required to drive the fan does not in some instances exceed six-tenths of 1 per cent. of the boiler horse power developed, or 2 per cent. of the estimated cost of a high chimney. Mr. Roney favors the more extended use of mechanical draught because thereby efficient economizers may be used.

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NEW YORK: SATURDAY, JUNE 9, 1894.

THE CHEMISTRY OF PAPER MAKING.

In THE PAPER TRADE JOURNAL of April 21 and May 5 we said that we expected to deliver copies of "The Chemistry of Paper Making" about June 1.

Greatly to our regret this hope has not been realized. The delay is entirely due to the dilatory action of the surviving author of the work. We are not therefore to be blamed, for we were prepared to print the remaining sheets and to bind the book within a fortnight after the receipt of the last copy and as soon as the last proofs had been read by the gentleman who is so derelict. We were promised that the work should be completed about a month ago, for only a part of Chapter 10 and the index remained to be written, and we were further assured that proofs would be read and returned promptly. The further postponement of publication is the result of the procrastination of Mr. A. D. Little.

HOWARD LOCKWOOD & CO.
NEW YORK, June 2, 1894.

A NEW beating engine, of foreign invention, is the subject of illustration and description on the first page of this issue of THE PAPER TRADE JOURNAL. In this engine there are two rolls, and it would seem that the purpose of this construction is to expedite the treatment of the stock, reducing the time usually required for beating.

RUSSIAN statesmen are drafting a scheme for the insurance of crops by the State. It is proposed to make the insurance compulsory, so far as farming lands are concerned, the rates varying according to the climatic conditions of the various districts. By this means it is hoped to ward off distress in seasons of crop failure. It seems to us that this is a doubtful expedient from whichever side it may be viewed. It may be a scheme for putting money into the treasury or the pockets of officials at the expense of the agriculturists, or it may facilitate plundering the Government by collusion between the farmers and the employees of the state.

THE country is to be congratulated on the defeat in the House of Representatives of the measure to repeal the 10 per cent. tax on State banks. With the present condition of affairs it is not a fit time to undertake the introduction of more disturbing elements. What we need now is a rest more than anything else. That our banking system will in the near future have to undergo some sort of revision and reorganization to make it meet more fully, and respond more readily to the financial needs of the people, there can be no doubt. The present, however, is no time for undertaking such a serious and responsible work. When the proper time comes the revision will undoubtedly be intrusted to experienced, level-headed men of broad, comprehensive views and sound business principles, and not to Congressional accidents and visionaries. The sober, honest thought of the nation is for a national currency every time. The present system has been a marvel of success; but the needs of the nation are fast outgrowing its capacity to meet them. Whatever the new system may be, one thing is certain: it must be national in character and scope, because under no other financial system will it be possible for the country to keep its proper pace with other nations.

DR. MULHALL, an eminent English statistician, thinks that this is a richer country than Great Britain. Thanks, Doctor; we have always thought that. He says that we have nearly twice as many people, and hence ought to be richer, and because we are "still in a pioneer state of existence as a nation," and our resources are practically undeveloped, the potential possibilities for future wealth are simply tremendous. This happily is not American braggadocio. He also says that, rich as we are, we are borrowers of capital, and will continue to be for some time, giving the follow reason: "America needs foreign capital, for it is still too true that native capitalists, with many creditable exceptions, do nothing for the development of the resources of the New World." This is worth thinking about in view of the self-expatriation of many wealthy American born citizens whose fortunes have been accumulated here, but who profess to find the conditions of life in their native land uncongenial to their supersensitive natures. A contemporary says: "The rightful place for all American millionaires whose fortunes have been made in this country is here, at home, earnestly endeavoring with all their intelligence, little though it be in some cases, to help settle the economic questions now being forced upon the attention of the nation." It is not enough that they leave their money here in investments which do not need their personal attention, and spend only the profits or incomes abroad; but, bad as that is, a worse feature of their absenteeism is the loss of their influence upon order and citizenship, and the alienation of their sympathies from the aims, methods and institutions of their country. English people profess great admiration for those absentee Americans who take up their abode in England and make lavish display of their American made wealth, but we notice that no Englishman of wealth follows their example.

THE question of the power of the Interstate Commerce Commission to enforce the attendance of witnesses and compel the production of all books, papers, tariffs, contracts, agreements and documents relating to any matter under investigation has just been decided in the affirmative by the Supreme Court of the United States on an appeal by the commission from a decision rendered by Judge Gresham some years ago, which upheld the refusal of witnesses to testify and produce books and papers. The decision just rendered hinged upon the interpretation of the twelfth section of the Interstate Commerce act, which authorizes the use of the United States courts in enforcing the attendance of witnesses. Upon this point the court said: "An adjudication that Congress could not establish an administrative body with authority to investigate the subject of interstate commerce, including the burdens imposed upon it by carriers and the necessity in the interest of the public of removing those burdens, and with power to call witnesses before it and to require the production of books, documents and papers relating to the subject, would, we apprehend, go far toward defeating the object for which the people of the United States placed commerce among the States under national control. All must recognize the fact that the information necessary as a basis of intelligent legislation by Congress from time to time upon the subject of interstate commerce cannot be obtained, nor could regulations of such commerce by rules be effectively enforced otherwise than through the instrumentality of an administrative body representing the whole country, always watchful of the general interest and charged with the duty of not only obtaining the required information, but of compelling by all lawful methods obedience to such rules." The work of the Commission has been greatly impeded and its remedial powers have often been practically nullified by the denial of some of its juridical functions, and the settlement of the question should infuse new vigor and energy into the work committed to its charge.

AT last the Hawaiian business is taken out of the domain of partisan politics and the little kingdom is to settle its own fate with the assurance that "Uncle Sam" will keep his weather eye open and see that no other nation imposes upon it. This is as it should be. There can be little doubt of the final annexation of the islands. The institution of a republican form of government will then be in the nature of a preparation for the enjoyment of free institutions under the ægis of the American Union. It may be said that for a new, small and undeveloped country Hawaii shows up well in the matter of trade. The total value of exports for the year just closed was $10,962,598, being an increase over the previous year of $2,782,720. The increase in the customs revenue amounted to about 12 per cent. This is a good showing for a year of agitation and disturbance in the islands and of business depression all over the world. Now, the next thing to be settled should be the complications which have arisen in the Mosquito Reservation, Nicaragua; and in view of the importance of the canal to the commerce of this country Congress should show a little more energy and promptitude in acting. Other powers see the advantages which would accrue to the nation owning the water-and will take every opportunity in relation to it which our people have lying around loose. This canal will virtually bring the Pacific Coast of both North and South America to the very doors of Eastern manufacturers, and will also operate as an effective check upon the exorbitant railway transportation rates which are a source of great complaint against the trans-continental railway lines. There are so many reasons why this Nicaraguan matter should be finally and effectively settled to the advantage of the people of the United States that we will not undertake to enumerate them. Business men can see them readily, and their duty is plainly enough to make their representatives in Congress not only see them also, but in the language of Mrs. Chick, "make an effort" as well.

CERTAINLY the year just passed will occupy a place of its own in the memory of men. As though human nature had not yet had the proverbial feather added to its burdens, floods unequalled in extent and calamitous in their consequences are producing unutterable distress and loss in many parts of the country. Untoward events have followed closely upon the heels of each other, until a sort of apathetic passivity very well describes the attitude of a majority of business men. Following the Baring failure, which began our troubles by converting foreign investors into sellers instead of buyers of American securities, came the silver agitation, which further unsettled American values by hastening the work of liquidation, increasing the outward flow of gold and aggravating distrust. Not an industry or a business concern escaped the baleful effects of the panic which swept over the Union, dragging in its wake a train of business disasters which foot up in liabilities to the almost inconceivable sum of $2,000,000,000. The thirty-sixth annual report of the Chamber of Commerce contains a vivid description of the events of the panic, preceding which is the following explanation of its cause: "This unfortunate condition of financial and commercial demoralization was not the result of a failure of crops, or of a devastating war, or of a disastrous conflagration, or of a destruction of real wealth. It was caused by a defiance of economic laws, which resulted in an impairment of the confidence of the people in the stability of the currency, and created apprehension at home and abroad as to the ability of the Government to maintain at par nearly $600,000,000 of silver with a gold reserve of less than $100,000,000." Immediately following the settlement of the fate of the silver purchasing act of 1890 came the tariff agitation, against which, although anticipated by business men, no protective preparation could be made; its disturbing effects had to be borne as best they could, the only appeal being, "make it short." Under these dire influences the value of American staples has touched bottom; wheat, cotton and wool are in excess of demand, caused in part no doubt by the diminished buying power of the people. Importations have fallen off; merchants are waiting to see how prices will be affected; the manufacturer runs only on orders, closing his factory, when they are filled, to await another order, thus taking no chances himself and keeping his men on the tenter hooks of anxiety—and so on through all fields of industry and all channels of trade. Men have dwelt so long on the dark side of affairs that the little rifts in the clouds escape their notice. The paper trade has suffered from the condition of affairs with all other productive industries, but for all that it has more than held its own in some directions, and the fact that it has done this ought to offset the influence upon the mind of half a dozen failures. Comparing the exports of paper during April, 1894, with those of April, 1893, we find that there was an increase in value of $33,000, and in a comparison of the ten months ended April 30, 1894, with the corresponding period last year we find that the increase reaches the encouraging sum of $356,414. For the ten months which ended with April last stationery exports show an increase in value over the same period of the year before of $85,177. Certainly if the export trade in paper can grow like that in the worst financial year the country has ever known, the highest hopes may be reasonably entertained of the general prosperity of business when matters in the world of trade shall have once more settled to their normal condition of activity.

Watermarks.

BY DANDY.

In a recent lawsuit in England regarding the noise and vibration of the machinery of a factory a phonograph was used to record the objectionable noises and reproduce them in court.

This is a mere entering wedge for the use of all new fangled notions and the next thing some paper or paper stock man will introduce the new kniteo-phonograph, which not only reproduces what a man says, but shows how he looked when he said it—catches him in the act.

It is claimed that these devices are scientific instruments, but it looks to me as though they were direct blows at those fellows who wrestle with Truth and throw her four times out of five.

However they are useful. A phonograph can be utilized by a paper stock man to reproduce the noise made by a paper maker note when it falls due, and the paper maker can have the other machine to show how the P. S. man looked and what he said when he received the information.

Now that cholera has broken out again in Europe the scheme of sending rag pulp to this market is being tried. Samples of linens and cottons are now being shown. They come in sheets, are dry, and look very handsome.

They avoid any quarantine regulations, but they run afoul of a tariff of 20 per cent. They, however, require less power to put into stock for the machine, and those who have used them report that they are satisfactory.

An exchange says that "if a doctor gives you the wrong medicine and kills you or harms you, the courts punish him, on the ground that he sets up as a doctor and is paid not to make mistakes. If a lawyer gives you bad advice and you lose a lot of money thereby, the same courts give you the laugh. Why? Because the court was once a lawyer and may be again, and he's no fool when self protection is the problem." There are many people who can vouch for the correctness of this.

"E. W." has bought a boat and has named her "T" in a diamond, because, as he says, that device shows that *she* is dry. Why she?

An importer says that when he buys stock from the other side he has to put up a letter of credit, that the exporter can send him whatever he wishes without regard to quality, and that he pays for goods before he sees them. He suggests that the trade here ought to get together and unite in an agreement requiring exporters to give bonds that they will make good claims for shortage, moisture, low quality, &c.

The importer should not kick. On the contrary, he should be thankful that he is able to put up a letter of credit, for the old rule requires him to "put up or shut up," and he will not do the latter. Again, he ought to be thankful that the exporter deigns to send him anything at all for his money.

Last Saturday the half holiday programme was put in force, and signs were displayed by some announcing that "This store closes at 1 P. M." The result is to be seen on the tennis and baseball fields and in the parks.

Changes, Removals and New Firms.

H. M. Knowles, publisher, Quitman, Mo., has sold out.

L. S. Putney, publisher, Sturgis, Mich., has sold out.

C. W. Rooks, publisher, Humboldt, Tenn., has sold out.

Nogales, Ariz., has a new paper called the *Border Vidette*.

W. B. Fawcett has opened a stationery store in Eureka, Cal.

Richard Pickering has opened a stationery store in Brooklyn, N. Y.

Morley & Hayden, stationers, &c., St. John, N. B., have sold out.

The *Epigram* is a new evening paper published at Baker City, Ore.

W. J. & G. Mulroney is the style of a new stationery house in Quebec, Que.

Isaac Gibbs, dealer in books and stationery, Industry, Kan., has sold out.

The *Herald*, Vancouver, Wash., is a new paper edited by George C. Hitchcock.

Strauss & Klee, printers, New York, have been succeeded by Frank V. Strauss.

E. W. Millikin, bookseller, &c., Oldtown, Me., has removed to Calais, same State.

The publication of the *Mechanical News*, New York, has been discontinued.

J. G. Holmes, publisher, Buchanan, Mich., has been succeeded by H. D. Bower.

J. C. Gribble, bookseller, &c., 107 Clark street, Chicago, Ill., has closed out the business.

The Watervliet (Mich.) Paper Mill Company has been incorporated. Capital stock, $150,000.

Mary A. Dayton, bookseller, &c., Ottumwa, Ia., has been succeeded by the Novelty Book Company.

The news and stationery business of David Jennings, Danbury, Conn., has been purchased by F. Mullarkey.

The Globe Paper and Fibre Company, Hounsfield, N. Y., has been incorporated with a capital stock of $300,000.

Chas. M. Conger, of Phœnix, Ariz., has purchased a half interest in the Wyoming *Derrick*, published at Casper, Wy.

The Rogers & Cowlam Book Store, J. W. Thomas, proprietor, Madison, Ind., has been purchased by Albert S. Alling.

A. W. McCloy & Co., booksellers, stationers, &c., Pittsburg, Pa., have dissolved partnership, W. J. Lowney retiring.

The Moncton Book Store, Moncton, N. B., has been purchased from the trustees, J. & W. McMillan & Co., by Hattie Tweedie.

A new paper devoted to horticulture and agriculture, to be called the *Orchard and Ranch*, will soon be started in Los Angeles, Cal.

The recently suspended firm of Shivler & Frothingham, booksellers and stationers, Troy, N. Y., has been succeeded by G. L. Shivler.

The Rainy Lake *Journal* is the name of a new paper at Rainy Lake City, N. W., Ont., the proprietor of which is Fred J. Bowman.

"The Bookstall" is the name of a new book and stationery store recently opened at 92 Washington street, Chicago, Ill., by Harry Falkenau.

The Ferguson Company, Limited, has been incorporated under the laws of Manitoba to continue the book business of Ferguson & Co., Winnipeg, Man., who failed last fall.

H. C. Wright and W. H. Williamson, of St. Louis, who for ten years past have been with the Parker Stationery Company, have opened an office supply and stationery business at 310 Olive street, that city.

The *Shorthand Educator*, published by the Heffler Shorthand Company, from 62 Broad street, New York, is a new magazine which succeeds *Browne's Photographic Weekly* and the *Shorthand Review*.

The Blakely and Murrill printing houses, Charlotte, N. C., have consolidated as the Queen City Printing and Paper Company. The incorporators are H. A. Murrill,

Thomas Ledwell, E. M. Andrews and J. D. Church. Capital stock, $10,000, with privilege of increasing it to $50,000.

The Megeath Stationery Company, dealer in stationery and typewriters, Omaha, Neb., has been succeeded by a copartnership under the same style.

The firm of J. B. Rolland & Sons, wholesale stationers, Montreal, Que., has been dissolved and reorganized with Donatien Rolland as special partner.

The Heim Parchment Paper Company, Chicago, Ill., has been incorporated by Julius Heim, James E. Holcomb and John O'Pateny. Capital stock, $20,000.

Wade & Drew, Northampton, Mass., owners of the *Hampshire County Journal*, have sold that paper to Ernest W. Rew. The sale does not include the plant, which Wade & Drew retain for their own business.

Huyck & Argersinger, manufacturers of paper makers' felts, Albany, N. Y., have dissolved partnership, Chauncey E. Argersinger retiring. F. C. Huyck will continue the business in connection with his son, Edmund N. Huyck.

George D. Monk, of Holyoke, has opened a book printing establishment in the old factory of Cutler, Lyons & Field on Olive street, Greenfield, Mass. It is surmised that Greenfield has been selected because it has no labor troubles.

The *National Baptist* has been sold for $16,000 to the owners of the *New York Examiner*, and its publication in Philadelphia is to be discontinued. Since 1872 the Rev. Dr. H. L. Wayland has edited the *National Baptist*, and he became its owner in 1883.

It is proposed to form a joint stock company to carry on the old established wholesale stationery business of R. Miller, Son & Co., Montreal, Que. The company will be known as the Robert Miller Company, with a capital of $30,000, and notice of application for a charter from the Quebec Government has been given.

The Acme Index Company, Baltimore, Md., has been incorporated to manufacture and sell indices and conduct a printing and stationery business. The incorporators are: Freeman C. Philbrick, Thomas S. Hodson, Pearre C. Crowl, Charles K. Judson and Arthur M. Easter. Capital stock, $15,000.

Failures.

The stock of J. C. Gauvin, bookseller, &c., Montreal, Que., has been advertised to be sold by the sheriff.

Coates & Weed, publishers of the Oneonta *Press*, Oneonta, N. Y., have been sold out under chattel mortgage foreclosure.

The Winters Art Lithograph Company, Springfield, Ohio, has applied for the appointment of a receiver, and Oscar T. Martin and Ben. H. Winters were appointed in that capacity. The firm published the World's Fair lithographs, and is now publishing the "Book of the Builders." For this purpose the Columbian Publication Society was organized, with D. H. Burnham, of Chicago, chief of construction of the World's Fair, president and general manager. The action taken will not affect this company. The liabilities are $152 000, and the plant is worth $75,000. The principal creditors outside of Springfield are: R. Hoe & Co., New York, $6,300; Godfrey & Clark Paper Company, Pittsburg, $4,300; Pulsifer, Jordan & Co., Boston, $1,400; Champion Card and Paper Company, Pepperell, Mass, $4,200; Fourth National Bank, Dayton, Ohio, $10,000; A. I. Ufferheimer & Co., Philadelphia, $14,142.

The schedules of the Elzevir Company, book publishers, 57 Rose street, which recently failed, have been filed, and show liabilities of $48,434.47, nominal assets of $18,519.64 and actual assets of $1,544.47. The claims against the company range from 10 cents to $5,000, and it takes 275 pages of long bill paper merely to give the list. The creditors are all over this country, in Mexico and across the water, and the names of those whose amounts are over $100 are those whose location is not given, being in New York, as follows: Rev. A. L. Nageroil, India, $155; W. L. Allison & Co., $1,277; John R. Anderson, $120; Argyle Press, $4,441, of which $1,522 is secured by lien; Baker & Taylor Company, $719; W. B. Beleker, $110; L. M. Berkley, $112; J. T. Bracker, Pa., $137; A. L. Burt, $952; Mrs. H. H. Clearby, N. H. $296; T. Y. Crowell & Co., $136; *Farm, Field & Friends*, Chicago, $183; Garretson, Cox & Co., Buffalo, $287, secured by lien; Mrs. Amelia B. Gatree, Ogden, Utah, $1,407; *Gospel News* Company, Chicago, $216; Orange, Judd & Co., $501; J. F. Kaiser, Bethlehem, Pa., $168; E. L. Kellogg, $287; George Langdon, Plymouth, Conn., $1,498, secured by lien; A. B. Link, Anderson, W. Va., $108; Lovejoy, Son & Co., $278; Lovejoy Company, $106; Rev. A. Lutton, Newcastle, Wy., $110; E. H. Masters, New York, $1,031; L. P. Matthews, Crete, Neb., $110; J. S. Ogilvie, $596; Perkins, Goodwin & Co., $5,000, of which $800 is secured by lien; Rand, McNally & Co., $265; L. A. Rhodes, Salem, Mass., $126; Emeline Shepard, East Hampton, Mass., $450; Chas. D. Sibley, $946; Stirling Bindery, $2,171; *Union Signal*, Chicago, $317; United States Book Company, $738; Van Cleve, Andrews Publishing Company, $120; W. S. Walcott, Eatontown, N. J., $115. The list of assets shows that the stock of sheets and books at the Argyle Press is wiped out by the lien of that concern and of C. Ward Bruen, the stock with the United States Book Company is wiped out by a lien of that company for money loaned, that at the Caxton bindery is covered by a lien of Garrettson, Cox & Co., that at the Stirling Bindery is covered by a lien of that concern, while other goods are subject to a lien of $800 of Perkins, Goodwin & Co. for money loaned. The property not covered by liens is of a nominal value of $6,696.76, and of an actual value of $1,345.29. It is explained that the difference between the nominal and actual value of the assets is because the books contain the imprint of the Elzevir Company or John B. Alden as president, and the company having to deal direct with consumers and not through the trade, the trade has to a very large extent been antagonized, and there is not likely to be any market for the books in the trade; also because the books are of unusual size and shape. Many book plates are of very little value for the same reason, and also represent books for which there is no general demand in the trade.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, June 8, 1894.

THE MONEY MARKET.—The stock market has shown a good deal of strength and the great majority of moving shares closed at higher figures. Call loans on stock collateral were still quoted at 1 per cent., with large supply and comparatively small demand. Outside of the Stock Exchange little is done in call loans, and the rate quoted is seldom above 1½ per cent. where the collateral offered is of a kind that is fairly easily marketable. Business in the loan market at the Stock Exchange represents chiefly the placing of private bankers' balances. For time loans there was little demand and the supply was excessive. Rates were quoted at 1½ per cent. for thirty days, 2 per cent. for sixty and ninety days, 2½ per cent. for four months and 3 per cent. for longer terms, but with more demand for long than for short loans. Commercial paper was dull because the supply of choice notes was no larger. Commissions are being shaded. Rates were 2½@3 per cent. for best indorsed bills at sixty and ninety days, 3@3½ per cent. for prime long commission house paper, 3½@4 per cent. for prime and 4½@6 per cent. for good single name notes. In foreign exchange the market was very quiet. Posted rates were $4.88½ for sixty days and $4.90 for sight. Actual rates were $4 87½@4.88 for sixty days and $4.88½@4.89½ for sight.

THE PAPER TRADE. — The paper trade is in about the same condition as when last reviewed. There has been no increase in the volume of business, and prices are not any stronger. A leading maker of jute papers has made a cut of ¼c., his mill price being now 4¼c. As a rule mills are running fairly, although there are a good many idle machines. Writing mills are running on orders only as a rule and are avoiding piling up stock. Nominally prices are unchanged, and it is only an actual buyer who finds the variations.

JUTE BUTTS.—The market is very quiet, and prices are unchanged. The statistical position as given by the June circular of Cabot, Ray & Co., is as follows: Imported to the United States, 1891, 560,692 bs.; 1892, 232,387 bs.; 1893, 331,738 bs. Consumed in the United States in 1891, 567.972 bs.; 1892, 222.609 bs.; 1893, 368,336 bs. Stock on hand, New York and Boston, January 1, 1894, 6,150 bs. Imported, New York and Boston, June 1, 1894, 4,392 bs.; 1893, 19,065 bs.; 1892, 85,425 bs. On passage for the United States April 23, 1894, and by cable to May 31, 1894, 75,533 bs.; 1893, 69,162 bs.; 1892, 22,297 bs. Visible supply to October 1, 79,925 bs.; 1893, 302,250 bs.; 1892, 107,772 bs. Consumption since January 1, 1894, 109,756 bs.; 1893, 302,250 bs.; 1892, 124,482 bs. Delivered to consumers past 30 days, 12,293 bs.; 1893, 38,391 bs.; 1892, 8,151 bs. The same circular adds: "Market for the month has been without feature, sales light on spot and nothing in futures. Calcutta market offering (in small lots at 1 3-16) merchantable quality for shipment. Deliveries to consumers for the month have been to bagging manufacturers, 8,277 bs.; to paper manufacturers, 4,016 bs. Spot stock, 4,892 bs. paper quality. Supply to October 1, paper quality, 7,792 bs.; owned by bagging manufacturers, 67,741 bales."

WOOD PULP.—The foreign market for Ground Wood is reported to have gone off considerably, and no export shipments are being made at present. It is also reported that some of the mills here are reducing product. The demand for home consumption is light.

WOOD FIBRE.—There is a fair call for small lots, but the market is quiet. Domestic Soda is quoted at 2¾@3½c. for Bleached. Domestic Sulphite is quoted at 2@2½c., as to quality, for Unbleached, and 3½c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.60@2.75c.; Bleached, same process, 3½@3.90c.; Unbleached, sulphite process, 2.50@3.25c.; Bleached, do., 4@4½c.; Bleached Straw Pulp, 4@4½c. Imports of Chemical Fibre this week aggregated 88 tons, being 9 tons from Antwerp, 40 tons from Gothenburg, 24 tons from Hamburg and 15 tons from Hull.

FOREIGN RAGS AND PAPER STOCK. —The market continues very quiet and prices rule very low. Imports are very light and there were no rags or papers brought in at this port this week. The importations for the week consisted of 88 tons chemical fibre and 2,556 bs. manillas, ports of shipment and quantities being as follows: Antwerp, 9 tons chemical fibre and 209 bs. manillas; Bremen, 73 bs. manillas; Bristol, 751 bs. manillas; Dundee, 47 bs. manillas; Gothenburg, 40 tons chemical fibre; Hamburg, 24 tons chemical fibre; Hull, 15 tons chemical fibre, 230 bs. manillas; Liverpool, 1,139 bs. manillas; London, 117 bs. manillas.

DOMESTIC RAGS.—The market continues quiet and prices are as quoted last week, say 3¼@3½c. for No. 1 City Whites, 2⅛@2¼c. for Soiled Whites, and 90@1¼c. for No. 2's.

BAGGING, &c.—The market is quiet and the price is low. There has been a sale this week at 1.05c., although the cost of import is placed by some at 1 1-32c. We note sales 50 tons Heavy Wool Tares at 1.30c.; 25 tons Bright Burlap at 1.30c.; 50 tons Mixed Bagging at .85c.; 50 tons English Manilla Rope at 2c. Manilla imports for the week aggregated 2,566 bales, being 209 bs. from Antwerp, 73 bs. from Bremen, 751 bs. from Bristol, 47 bs. from Dundee, 230 bs. from Hull, 1,139 bs. from Liverpool and 117 bs. from London.

OLD PAPERS.—Papers are moving in a moderate way. We quote: No. 1 Hard White Shavings, 2¾c.; No. 1 Soft White do., strictly free from wood, 2.15c.; Soft White do., ordinary, 1⅞@2c.; Old Ledgers, 2.10c.; Solid Printed Books, 1¼c.; Mixed Shavings, No. 1, 1.20@1.25c.; Mixed Shavings, No. 2, ¼@1c.; Extra No. 1 Manillas, 1.15c.; No. 1 Manillas, ordinary, .80c.; No. 2 Manillas, .60c.; Light Book Stock, 1⅛c.; Folded News, .40c.; Mixed Papers, .40c.; Commons, 25@30c.; Straw Clippings, .45@.50c.; Binders' do., .50c.

STRAW.—Straw is quiet and easy. We quote: No. 1 Long Rye at 60@65c.; No. 2 Long Rye at 50@55c.; Short Rye at 45@50c.; Wheat at 40@50c., and Oat at 50@60c.

ROSINS.—Rosins were firm but dull. We quote: Common to Good Strained, $1.57½@1.62½; E, $1.75; F, $1.85; G, $2; H, $2.25; I, $2.55; K, $2.85@2.90; M, $3.05@3.10; N, $3.25@3.30; W. G., $3.40.

CHEMICALS.—The market for paper makers' chemicals is very dull. Bleaching Powder is quiet so far as spot lots are concerned, but contracts over the year have been in request. Sal Soda is in moderate request. Caustic Soda is moving freely, and Alkali is in fair call. During the week there have been sales of 100 cks. Bleach at 2¼c.; 50 tons Soda Ash at 1⅜c.; 100 tons 58 per cent. Alkali at 1½c.; 100 drums Caustic at 2.82½c.; 10 cs. German Ultramarine at 17¾c.

CHINA CLAY—The market is dull. Glass and pottery makers are light buyers, due mainly to their use of goods taken from stock. In consequence, the supply considerably exceeds the demand. Spot from store is offered at $13@18 and ex ship at $12@17.50, as to bulk and quality.

TWINES.—There is a moderate trade in progress. We quote: Sisal Hay Rope, 5@6c.; Sisal Lath Yarn, fine, 9¼c., and medium, 9c.; Jute Lines, 7½c.; Jute Ready, 7@7½c.; New Zealand Hay Rope, 6¼@7¼c.; New Zealand Lath Yarn, fine, 9¼c.; medium, 8¾c. Twines—Hemp, 4½ and 6 B Russia, 12c.; 4½ and 6 A American, 12c.; 4½ and 6 D Jute, 9½c.; 4½ and 6 L Jute, 9c.; Hemp Ball, 18 B C, 17c.; 18 C, 15c.; Russian Hemp Hay Rope, 9c.

COAL.—During the past week the demand for Anthracite has been more quiet than for some weeks. The advance noted for the first of the month resulted in quite a number of orders for future delivery, and this may keep the producers and carriers busy for some time. The markets generally are in sympathy. Soft coal on hand or to be acquired is held at a high price and in this the only people who share are the owners. The use of Anthracite is extending, and with such good results that many manufacturers will continue its use.

WATERBURY
Felts and Jackets,
MANUFACTURED BY
H. WATERBURY & SONS CO.,
ORISKANY, N. Y.
Adapted to *every* grade of paper, from the *finest* to the *coarsest*.
The Largest Manufacturers of Paper Makers' Felts in the World.
Our wet machine or pulp felts are *unequaled* for *durability*.
For WRITING and LEDGER PAPERS We warrant a felt equal to anything imported.

EDWIN BUTTERWORTH & CO.,
MANCHESTER ENGLAND,
PACKERS OF ALL KINDS OF
Paper Stock, Cotton Waste and Buffalo Sizing, Wood Pulp, Moist and Air Dry Pulp, Soda and Ground Pulp,
(P) 83 GUNNY BAGGING, &c.
OFFICE IN NEW YORK:
Vanderbilt Building, No. 132 Nassau Street,
JAMES FINNIE, A. S. DEMAREST, } Managers.

PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS' SELLING PRICES.

Ledger and Record	$0.18	@	$0.24
Flat Caps, superfines	14	@	16
Flat Caps, fines	11½	@	13
Flat Caps, engine sized	7½	@	9
Blotting, American	8	@	15
Blotting, English	17	@	....
Book, super sized and calendered	6	@	9
Book, super sized and tinted	6	@	7½
Book, extra machine finish	5½	@	6
Book, machine finish, low grade	5	@	5½
News, No. 1	4	@	4½
News, rag and wood	3	@	3½
Poster	5	@	7
Hanging, superfine, No. 1	8	@	10
Hanging, superfine, No. 2	6	@	8
Hanging, machine satin	4	@	4½
Hanging, white blank, No. 1	4	@	4½
Hanging, curtain	3½	@	4
Hanging, brown	2½	@	3
Colored papers, double mediums	6½	@	8
Colored papers, glazed medium	7½	@	8½
Colored papers, tobacco	8½	@	9½
Colored papers, tissues, 20×30, ℔ ream	1.10	@	1.35
Tissues, black, 20×30, ℔ ream	1.40	@	1.50
White tissue, 20×30, ℔ ream	85	@	1.00
White tissue, 24×36, ℔ ream	1.30	@	1.50
Manillas, Flour sack, cream	10½	@	....
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6½
Manillas, No. 1, heavy weight	6½	@	6½
Manillas, No. 2	5	@	6
Manillas, Bogus	2½	@	3½
Wrapping Parchment	16	@	20
Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion	75	@	80
Hardware, light colored, No. 1	9	@	10
Hardware, No. 1, glazed, tarred	7	@	8
Hardware, No. 1, glazed	4½	@	5
Binders' Boards, ℔ ton, No. 1	70.00	@	90.00
Binders' Boards, ℔ ton, No. 2	40.00	@	50.00
Strawboards, air dried, No. 1, ℔ ton	47.50	@	....
Strawboards, steam dried, No. 1, ℔ ton f. o. b. mill	....	@	34.00
Straw Wrapping, bales, 15×20, 15½ lbs., 20 sheets—			
36×40, from 38 to 42 lbs. ℔ rm	85	@	....
30×40, from 30 to 34 lbs. ℔ rm	....	@	72
24×36, from 24 to 26 lbs. ℔ rm	....	@	60
22×32, from 24 to 26 lbs. ℔ rm	56	@	....
20×30, 21 lbs., ℔ rm	....	@	44
20×30, from 14 to 17 lbs. ℔ rm	36	@	....
16×22, from 12 to 13 lbs. ℔ rm	28	@	....
18×28	....	@	32
15×20, 10 lbs. ℔ rm	17	@	19
15×20, from 7 to 8½ lbs. ℔ rm	17	@	19
14×18	....	@	15
12×16	....	@	13
11×15	....	@	11
Straw Wrapping, ℔ lb., heavy weight	1.75	@	1.85
Straw Wrapping, ℔ lb., light weight	1¾	@	....
Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book	21.00	@	30.00
Tea Papers, 16 sheet quires—			
12×18	18	@	20
14×20	22	@	....
Card Middles, ground wood	5½	@	6¼
Card Middles, long fibre wood	8½	@	9
Card Middles, rag and wood	6	@	9
Pulp Lined Boards, single manilla, No. 100 and heavier	42.50	@	....
Pulp Lined Boards, double manilla, No. 100 and heavier	47.50	@	....

Woolen Rags.

Comforter Stock	8	@	9
White Woolens	9	@	10
Blue Gray Stockings	7	@	8
White Stockings	15	@	16
Blue Flannels	6	@	7
Reds, old	7½	@	8
Reds, new Shirt Clippings	20	@	21
Mixed Softs, free of Carpets	7½	@	8
Seamed Cloth	3½	@	4
Skirted Cloth	2½	@	2
New Cloth Clips	9	@	11
New Satinets, clean stock	1½	@	1½
Satinets, old	65	@	75
Seams	1	@	1¼
Delaines, stripped for extract	2½	@	8½
Blankets, Woolen	2½	@	2½
Wool Carpets	3	@	....
White Linseys	3	@	3¼
Mixed Linseys	1½	@	....

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	5½	@	6
Mill Assorted Whites	3½	@	3¾
Unbleached Muslins	4	@	4¼
City Whites, No. 1	3¼	@	....
New Seconds, light	2¼	@	....
New Seconds, dark	1¾	@	2
No. 2 Whites	¾	@	1.15
Cotton Canvas, No. 1	3½	@	....
Linen Canvas, No. 1	....	@	3
Country Mixed, free of Woolens	60	@	75
Seconds (City)	30	@	50
Colors, ℔ 100 lbs	30	@	40
Manilla Rope	2	@	2¼
Manilla Rope, tarred	....	@	....
Gunny Bagging, No. 1	....	@	1¼
Mixed Bagging, No. 1	80	@	90
Burlap Bagging, No. 1	....	@	1¼
Kentucky Hemp Bagging	....	@	....
Tar Shakings	1	@	....
Hemp Twine Stock	2½	@	....
Jute Waste	¾	@	1

Shavings and Old Paper.

White Collar Cuttings	3	@	....
White Envelope Cuttings	3½	@	....
Hard White Shavings, No. 1	2¾	@	3
Soft White Shavings, strictly free from wood	2.15	@	....
Soft White Shavings, ordinary	1¾	@	2
Mixed Shavings, part white	1	@	1½
Ledger and Writing	2	@	2.10
Solid Stock	....	@	1¼
Book Stock, No. 1 light	....	@	1¼
Old Newspapers	40	@	....
Manillas No. 1	....	@	1.15
Manillas No. 2	80	@	....
Mixed Manillas	60	@	....
Hardwares, No. 1	65	@	....
Mixed Papers	40	@	....
Commons	25	@	30
Binders' Board Cuttings	50	@	....
Strawboard Cuttings	45	@	50

English Old Papers and Shavings.

Hard Shavings, No. 1	2	@	....
Soft Shavings, No. 1	2¾	@	2¾
White and Colored Shavings, No. 1	1¼	@	1½
White and Colored Shavings, No. 2	1	@	1¼
Cream Post Shavings	2½	@	....
Paper Collar Cuttings	....	@	2
Briefs and Letters	1½	@	1¾
Books and Pamphlets	1.10	@	....
Old Newspapers	....	@	....
Broken News and Letters	⅞	@	1
Old Blank Books	2¾	@	2½
White and Buff Railway Sheets	1¼	@	....

Japanese Rags.

Blues, Hiogo	1.45	@	....

Chemicals, Coloring Materials, &c.

Alkali, 58 ℔ cent	1.55	@	1.75
Alum, lump	1.65	@	....
Alum, ground	1.75	@	....
Alum, Keystone	1½	@	¾
Alum, Diamond	....	@	2½
Alum, pearl	2½	@	2¾
Alum, porous	2½	@	2¾
Alum, Merrimac porous	2	@	....
Aluminous Cake	....	@	1¼
Anti-Chlorine	....	@	2¾
Bichromate Potash, American	....	@	10
Bleaching Powders, spot	2¼	@	....
Cambridge Ochre	11.25	@	....
Caustic Soda, 60 ℔ cent	2.75	@	2.80
Clay, China, English, ℔ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ℔ ton	9.50	@	10.00
Clay, Terra Alba, French, ℔ cwt	1.00	@	1.12½
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	3	@	3½
Copperas, American	....	@	80
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	....	@	9½
Potato Starch	4½	@	4¾
Prussian Blue, dry	30	@	35
Prussiate Potash, American	....	@	24½
Rosins, common to good strained, ℔ bbl	1.57½	@	1.62½
Rosins, E, ℔ bbl	....	@	1.75
Rosins, F, ℔ bbl	1.85	@	....
Rosins, G, ℔ bbl	....	@	2.00
Rosins, H, ℔ bbl	2.25	@	....
Rosins, I, ℔ bbl	2.55	@	....
Rosins, K, ℔ bbl	2.85	@	2.90
Rosins, M, ℔ bbl	3.05	@	3.10
Rosins, N, ℔ bbl	3.25	@	3.30
Rosins, W G, ℔ bbl	3.40	@	....
Sal Soda	1.10	@	....
Soda Ash Caustic, 48 ℔ cent	1.60	@	1.65
Soda Ash, carbonated, 48 ℔ cent	1.57½	@	1.70
Soluble Blue	40	@	55
Spanish Brown	½	@	1
Sugar Lead, white	12	@	....
Sugar Lead, brown	7	@	....
Sulphate of Alumina	....	@	2½
Sulphuric Acid, 66 ℔ cent	1	@	1½
Ultramarine, blue	14	@	17½
Venetian Red	1	@	1½
Vitriol, blue	5¼	@	5½
Yellow Ochre Rochelle	1.35	@	1.50

BOSTON MARKET.

Paper Stock.

White Rags, No. 1	4	@	....
No. 2 Whites	3	@	3¼
Common Seconds	2	@	2½
Thirds and Blues	1	@	1.20
Southern Mixed Rags	80	@	1
Colors, country	½	@	¾
Colors, city	25	@	30
New Calicoes, light	2	@	2½
New Calicoes, dark	1½	@	1½
Shirt Cuttings, best	4½	@	5
Shirt Cuttings, good	4	@	4½
Shirt Cuttings, unbleached	4	@	4½
Shirt Cuttings, unbleached No. 2	....	@	3
Shirt Cuttings, cheviots	3	@	3½
Overall Cuttings, blue	....	@	3
Overall Cuttings, brown	2	@	2½
Shoe Rags, bleached	3½	@	4
Shoe Rags, unbleached	3½	@	3
Shoe Rags, brown	3	@	....
Cotton Flannels, bleached	3½	@	4
Cotton Flannels, unbleached	3½	@	....
Corset Rags, drab	3½	@	....
Corset Rags, white	4	@	....
Tailors' Seconds	1¼	@	1½
Tailors' Colors	25	@	....
Cotton Canvas	....	@	3
Cotton Canvas, No. 2	....	@	1½
Linen Canvas	1½	@	3
New Canvas Cutting	4	@	4½
Insole Canvas	3	@	3½
Print Papers, best	35	@	40
Print Papers, ordinary	30	@	35
Folded News	35	@	40
Old Waste Papers	15	@	20
Manilla Paper, No. 1	1.30	@	1.35
Manilla Paper, good mixed	90	@	....
Manilla Paper, blues	75	@	....
Mixed Book Stock	1	@	....
Books and Pamphlets	1½	@	1½
Book Stock, light	¾	@	1
Ledgers and Letters	1½	@	2½
Soft Book Shavings	1½	@	2
Hard White Book Shavings	2½	@	2¾
Leather Board Chips	75	@	80
Straw Chips	45	@	50
Shivey Bagging	1½	@	....
No. 1 Factory Bagging	1	@	1⅛
Burlap Bagging	85	@	1
Burlap Bagging, large pieces	85	@	1¼
Kentucky Bagging	1½	@	2
Mixed Bagging	⅞	@	....
No. 2 Bagging	½	@	⅝
Shakings, soft	½	@	....
Tarred Shakings	1	@	1¼
Standing Rigging	3	@	....
Standing Rigging, foreign	2½	@	....
Bolt Rope	2	@	....
Oakum Junk, No. 2	1½	@	1⅝
Tarred Paper Junk	1.15	@	1.20
Tarred Paper Junk, inferior	⅝	@	....
Manilla Rope	2	@	2.15
Tarred Manilla	1½	@	....
Hemp Strings	1⅞	@	2
Sisal Strings	80	@	1
Wool Strings	90	@	1.10
Flax Tow	½	@	1
Flax Waste	½	@	1

New Papers.

Superfine Book	6	@	7
Fine Book	5½	@	6
News, rag and wood	3	@	....
Manilla, Cream Rope	9½	@	10
Manilla, No. 1, Rope	7½	@	8½
Manilla, Extra Jute	5½	@	6
Manilla, Jute and Gunny	5½	@	6
Manilla, No. 2	4	@	4½
Manilla, Bogus	2	@	3
Hardware, No. 1, tarred	7½	@	8½
Hardware, No. 2	6½	@	7
Hardware, red	4½	@	5½
Strawboards, air dried, ℔ ton	37½	@	45.00
Strawboards, steam dried, ℔ ton	30.00	@	35.00
Straw Wrapping, heavy	1.90	@	2¼
Straw Wrapping, light	2¼	@	2½
Binders' Boards, ℔ ton	45.00	@	50.00
Leather Board, Common, ℔ lb	3	@	4
Leather Board, counter	5	@	8
Leather Board, extra	8	@	10
Tar Boards, ℔ ton	100.00	@	110.00

Chemicals.

Alkali	1.00	@	1.10
Aluminous Cake, currency	1¼	@	1¼
Alum, American ground	....	@	1.95
Alum, American lump	....	@	1.85
Anti-Chlorine	2	@	2½
Bichromate Potash, American	10	@	....
Bleaching Powders	2¼	@	2¾
Blackley Blue	2.00	@	3.00
Caustic Soda, 74 ℔ cent	....	@	2.65
Clay, English, ℔ ton	14.00	@	18.00
Clay, American, ℔ ton	10.00	@	11.00
Copperas, ℔ lb	65	@	75
Extract Logwood	5½	@	11½
Lime, Rockland, ℔ bbl	90	@	....
Prussian Blue, ℔ lb	50	@	60
Prussiate Potash, American, yellow	22	@	22½
Prussiate Potash, red	38	@	38½
Rosin, common strained, ℔ bbl	1.90	@	2.50
Rosin, Medium	2.20	@	3.00
Rosin, extra pale, ℔ bbl	3.00	@	4.50
Sal Soda, English, ℔ lb	1.00	@	1.05
Soda Ash, 48 ℔ cent. caustic	1.40	@	1.60
Soda Ash, 48 ℔ cent. carbonated	1.37	@	1.50
Soluble Blue	55	@	65
Sugar Lead, white	11	@	12
Sugar Lead, brown	5½	@	6
Sulphuric Acid, 66°	¾	@	1¼
Terra Alba, ℔ ton	15.00	@	20.00
Ultramarine, ℔ lb	12½	@	15
Venetian Red, ℔ lb	1¾	@	2¼
Vitriol, Blue	3½	@	3¾
Yellow Ochre	½	@	1

Wants and For Sale.

Twenty-five words or less, one dollar each insertion. Over twenty-five words, four cents a word each insertion, up to eighty words. Cash should accompany order.

Over eighty words, or displayed advertising, will be charged for by the inch, according to our regular schedule of rates.

Answers can come in our care and will be promptly forwarded without extra charge.

SITUATION WANTED—BY ENGLISHMAN (presently West); over twenty years in English, Scotch and Irish rag and paper stock trade; thoroughly reliable. Address ENGLISHMAN, care Journal.

WOOD PULP—AGENCY WANTED FOR Scotland by well-known dealer; bankers' references. Address No. 163, KEITH & CO., advertising agents, Edinburgh, Scotland.

WANTED—SITUATION AS SUPERINTENDent or foreman in book, news or manilla mill; accustomed to all grades of stock and colors; good reference. JORDAN, care Journal.

PAPER MILL WANTED—WILL LEASE, with right to purchase; must be located on a railroad and have good water power; give full particulars, location and price. RESPONSIBLE, care Paper Trade Journal.

SITUATIONS WANTED BY FIRST-CLASS superintendents, machine tenders and engineers; worked on all grades of paper; both slow and fast running machines; can furnish best references if required. Apply to EAGLE LODGE No. 1, Brotherhood of Paper Makers, Box 672, Holyoke, Mass.

SALESMAN WANTED.

To place product of 10 ton mill making bogus manillas, wrapping and specialties as may be required; to the right party a good engagement is open. Address, with references,

W. P. M., this office.

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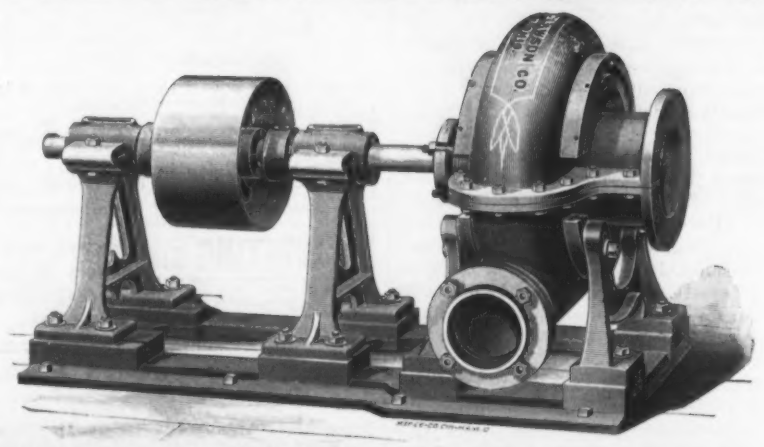

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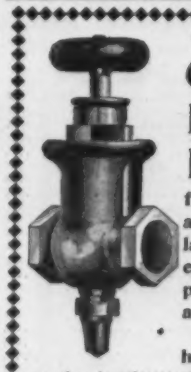

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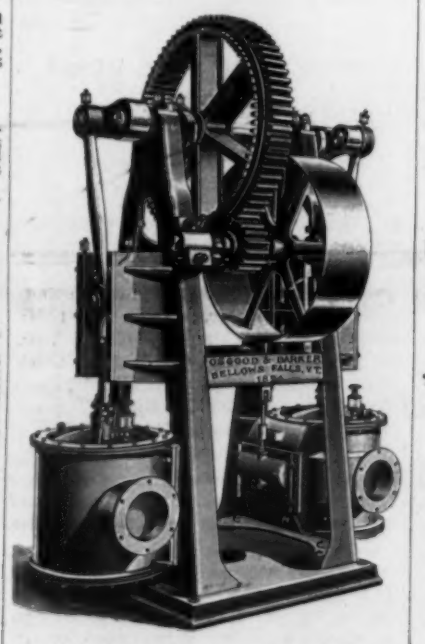

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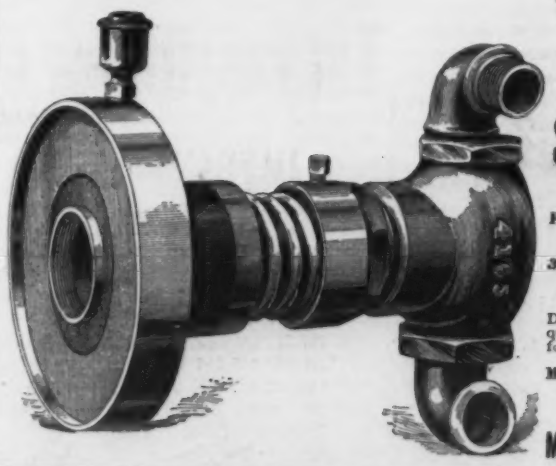

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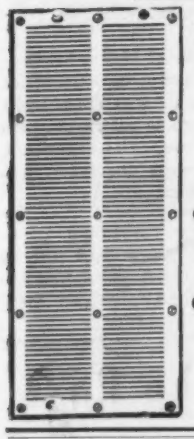

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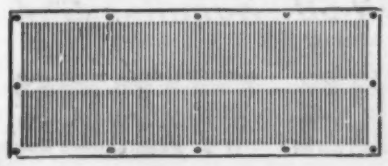

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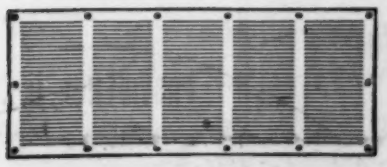

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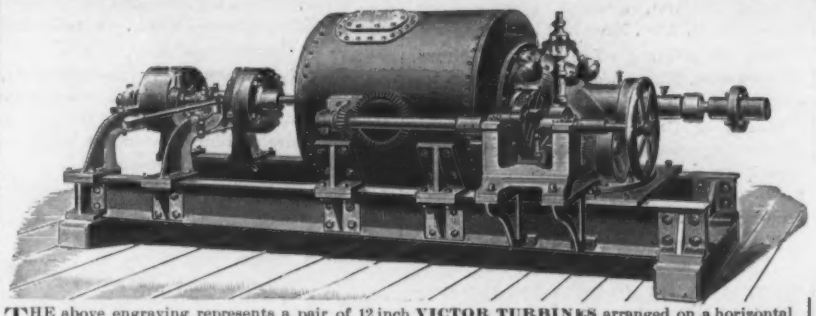

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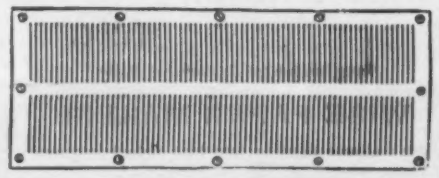

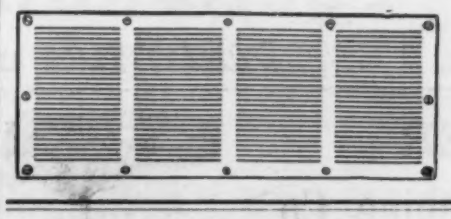

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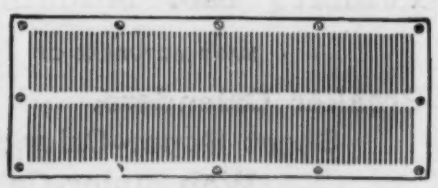

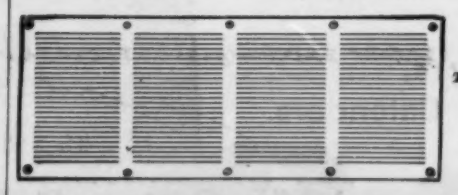

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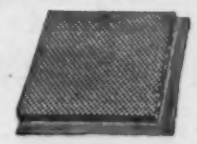

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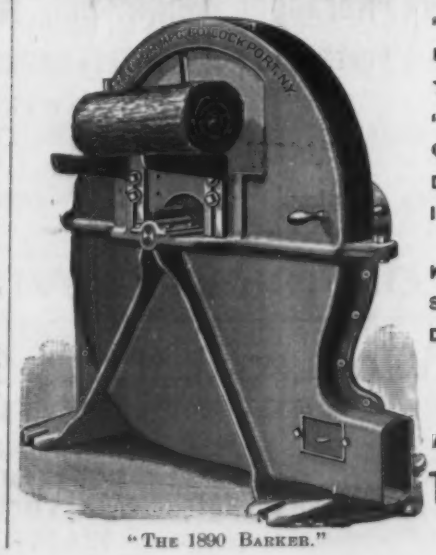

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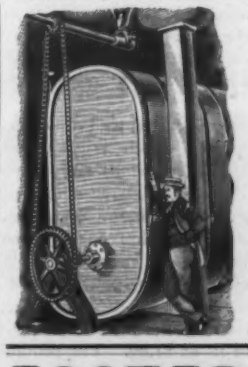

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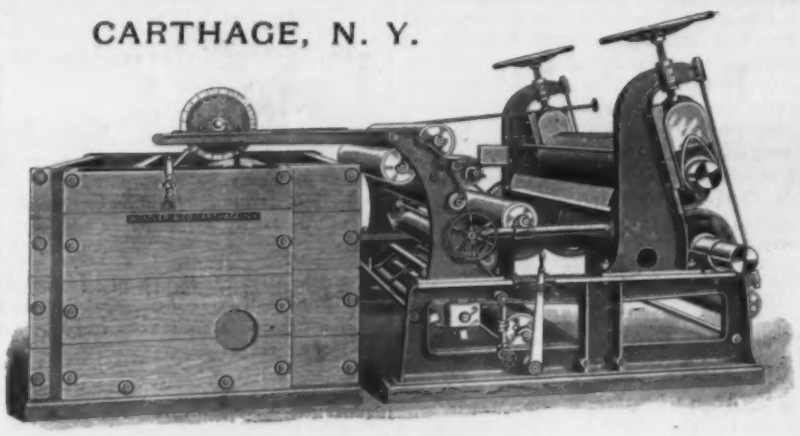

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Manufacturing News.

EASTERN STATES.

The last of the big drive of pulp wood from the Ammonoosuc River, and owned by the Fall Mountain Paper Company, reached Bellows Falls, Vt., on May 29. It comprised about 2,000,000 feet of logs.

The Jay Paper Manufacturing Company, Jay, Me., is said to have made over 500 tons of news during May. On two or three nights lately one machine turned off over 8½ tons per night.

The Charter Oak Mill, Burnside, Conn., was shut down on Saturday, June 2. It will be started up when orders enough come to hand to warrant it.

The Lawrence Machine Company, Lawrence, Mass., reports sales of its centrifugal pumping machinery and Lawrence vertical engines during last month, as follows: Anchor Mills Paper Company, one 4 inch class A pump; Valk & Murdock Iron Works, Charleston, S. C., one 8 inch class B pump and 15 horse power vertical engine; Newark Tanning Company, Newark, N. J., one 2 inch class B pump; the Sugar Apparatus Manufacturing Company, Philadelphia, Pa., three 5 inch class B brass pumps, Perrin, Seamans & Co., Boston, Mass., one 10 inch class B pump; Sagehomme & Byers, North Andover, Mass., one 4 inch class A pump, one 15 horse power P. Lawrence throttling engine; Parkhill Manufacturing Company, Fitchburg, Mass., one 1 inch class B pump; Perrin, Seamans & Co., Boston, Mass., one 4 inch class B pump, a 4 horse power engine, three 6 inch class B pumps and one 6 inch foot valve; Alexander Smith & Sons, Yonkers, N. Y., one 3 inch class B pump; Gail Borden, Manager Borden's Home Farm, Wallkill, N. Y., one 4 inch class A pump, with 5 inch foot valve; Worcester Bleach and Dye Works, Worcester, Mass., one 4 inch class B pump.

MIDDLE STATES.

The Elmira Stamping and Paper Company, Elmira, N. Y., was damaged about $1,000 by the recent flood. Three carloads of paper stored in the company's cellar were ruined. This company is hard up for fuel.

The Gowanda Printing Company, Gowanda, N. Y., has discontinued its paper box manufactory and is offering the plant for sale.

E. C. Hargrave & Co. are pushing work on their new pulp mill at Hinckley, N. Y. They have 150 hands engaged.

The Sheffield Paper Company, Saugerties, N. Y., expects to start up its No. 2 mill on or before July 1.

The mill of the H. F. Watson Company, Erie, Pa., which has been shut down for want of coal, will start up as soon as a supply of fuel reaches the mill, twenty-five carloads being on the way.

The Analomink Paper Mills, Experiment Mills, Pa., shut down on Thursday to put in a new stack of calenders on the machine and an 1,800 pound Emerson engine.

The Roaring Spring Mill, Roaring Spring, Pa., has been started up again, using wood for fuel until coal can be had.

A. V. Morris & Sons have ordered the Roach self packing system from M. J. Roach, Anderson, Ind., to be used on all of the dryers in their paper mill at Amsterdam, N. Y.

WESTERN STATES.

The Indiana Pulp and Paper Company, Marion, Ind., reports business good. During the six days ended June 2 this company made 152 tons of box board and box layers. From Monday morning, May 28, to Wednesday noon, May 30, the mill ran off 45 tons of box board, and was then shut down until 5:30 P. M., and after starting up ran until 5 o'clock on Sunday morning, after turning off 107 tons. F. E. Alward is superintendent of the mill, and John Peterson and John Winzel are the machine tenders.

The American Straw Board Company, Kokomo, Ind., has made a contract for gas for fuel for its mill, and will soon start up. It is reported that the farmers in the vicinity of Kokomo propose to fight the company in the courts if the stream on which the plant is located becomes polluted by refuse from the mill.

The St. Joseph Valley Paper Company, Elkhart, Ind., is pushing the construction of its mill, which it expects to have ready to start up by July 1. The mill, which is located on the site of the burned Beardsley Mill, will be run on carpet paper and will be known as the Christian Mill.

The Lyons Mill, Lyons, Ia., has been shut down for want of coal.

The coal trouble is making Western mill owners hunt for fuel. The Fort Scott Paper Company, Fort Scott, Kan., offers to pay $5,000 to anyone who will put down a gas well on its premises and secure for it a supply of gas sufficient to run its boiler plant.

It is proposed to enlarge the plant at the Stratford Paper Mills, Delaware, Ohio. The Hocking Valley Railroad has signified its willingness to lay a track to the mill.

The Puget Sound Pulp and Paper Company, Everett, Wash., has made another large shipment of paper to Australia.

Contracts have been let for the new paper mill at Oconto Falls, Wis. The mill is to be completed by September 1.

SOUTHERN STATES.

The Old Kentucky Paper Company, Louisville, Ky., has applied the metallic steam joint system of M. J. Roach, Anderson, Ind., to its 76 inch machine.

CANADA.

J. C. Wilson & Co., of Montreal, Canada, have started up their new machine in their mill at Lachute.

The E. B. Eddy Manufacturing Company, Hull, Que., has decided to convert two of its present wood mills into another paper mill and a paper bag factory, and will build a new warehouse and one story paper factory.

The bonus of $25,000 voted to the Drummondville water power, which was carried by the ratepayers by a large majority, takes the shape of a gift of $15,000 and a loan of $10,000, debentures to issue for 20 years. The company is to develop 5,000 horse power from the dam, and it is further stipulated that 2,000 of it shall be open to rent at $2 per horse power up to 100 horse power, and any lessee needing more than 100 is to be furnished with it at $1.50. The promoter is the Montreal Paper Company.

FOREIGN.

John Dickinson & Co., Hemel Hempstead, Herts, England, have ordered from M. J. Roach, Anderson, Ind., metallic steam joints, to be shipped at once.

Tariff Decisions.

The Board of General Appraisers has rendered the following decision:

A. B. Ansbacher & Co. et al. *v.* Collector at New York.—Ultramarine blue in pulp, imported at various times. The merchandise was ultramarine blue, imported in casks in the form of pulp or pastes, made by mixing with water, the proportion of the latter ranging from 40 per cent. upward. Duty was assessed at 4½ cents per pound upon the whole substance, water and all, under paragraph 55, N. T. The appellants claimed that duty should have been assessed on the dry weight only. In accordance with a decision of the Court of Appeals the protest was overruled.

Obituary.

Col. Frederick G. Skinner, an editorial associate of *Turf, Field and Farm*, died on May 22 at Charlottesville, Va., aged eighty years. He was educated in France. He returned to the United States at the beginning of the war of the rebellion and took command of the First Virginia Infantry. After the war he went to Egypt for the purpose of selling guns to the Khedive, and had it not been for the control of that country by England would have made a fortune. He was well acquainted with the Khedive and Arabi Pasha. When only ten years old he accompanied Lafayette to France.

Benjamin D. Hill, of Peabody, Mass., an old newspaper man, died on June 1 at the age of sixty-seven years. In 1867 he was Peabody correspondent of the Boston *Firemen's Journal*, and from 1865 to 1890 was correspondent of the Boston *Traveller*. From 1881 to 1888 he represented the Boston *Globe*. He leaves a widow, a son and daughter.

Prof. William Dwight Whitney, professor of comparative philology at Yale College, New Haven, Conn., died at his residence in that city on Thursday, June 7. Professor Whitney's scholastic reputation was solidly grounded in acquirements of the highest character. As a philologist he was an accepted authority by scholars all over the world, and as a linguist he had few equals. He will be deeply regretted in educational circles.

John A. Taylor, formerly of the National Publishing Company, and of the John A. Taylor Company, New York, died at Toronto, Ont., recently.

Jacob Lees, retired wall paper dealer, Lyons, N. Y., died on June 1.

J. A. Taylor, publisher, Toronto, Ont., is dead.

The suit brought by G. W. Millar & Co., against E. M. & C. J. Rourke, of Manchester, England, for allowance on alleged moisture in bagging is to be arbitrated, W. H. Sharp, of the Jessup & Moore Paper Company, acting for the defendants, and Maj. J. Fred. Ackerman, of Perkins, Goodwin & Co., for the plaintiffs.

Fires.

F. A. Mauger, printer, Omaha, Neb., has had a loss by fire.

Colby & Roll, dealers in wall paper, Birmingham, Ala., have had loss by fire.

The job printing office of J. U. Guiress, Woonsocket, Mass., was burned out on the evening of June 5.

Weeks & Campbell, manufacturers of advertising specialties, 204 Church street, New York, were damaged about $2,000 by a fire which broke out on their premises on Monday, June 4.

The book and stationery store of Edward P. Kenner, Bowmanville, Ont., was badly damaged by fire recently, and the stock almost totally destroyed. Loss partly covered by insurance.

Personals.

George W. Seaverns has severed his connection with the Analomink Paper Mills, Experiment Mills, Pa., and has returned to his home in Lawrence, Mass., where he will remain for the present.

Franklyn Bayless, paper manufacturer, Binghamton, N. Y., was married to Cleone Wilson, daughter of George Wilson, in Christ Church, Binghamton, at noon on June 6. Guests were present from New York, Philadelphia, Baltimore and Washington.

Invitations are out for the marriage of Harriet A. Peale, daughter of Mr. and Mrs. S. R. Peale, of Lock Haven, Pa., and Frank B. Towne, of the National Blank Book Company. The wedding will take place in the Lock Haven Episcopal Church, and will be attended by a large number of Holyoke people.

Cards are out for the marriage of Charles Norton Sherman to Grace Adelaide Fellows, which will take place at the First Presbyterian Church, Watertown, N. Y., on June 14 at 11:30 A. M.

Fritz Lindenmeyr, son of Henry Lindenmeyr, of Henry Lindenmeyr & Sons, paper dealers, New York, who was shot by a highwayman a week ago, is all right again and able to be at business. His experience was of a decidedly rough character, and he had a very narrow escape.

Sealed proposals for furnishing paper bags to the New York Navy Yard will be opened at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., on June 19.

THE "Hamilton" Felt.

"Best and Most Economical Made."

WISE PAPER MAKERS

don't always want to buy high priced imported Felts, nor do they want to experiment with inferior grades of domestic ones. The "Hamilton" answers their requirements in every respect.

In ordering mention kind of stock used, quality of paper made and speed of machine.

Shuler & Benninghofen, Hamilton, Ohio.

The W. S. Tyler Wire Works Co.,

CLEVELAND, OHIO.

MANUFACTURERS OF

FOURDRINIER WIRES,

Cylinder Faces and Washer Wires.

GRANGER Foundry and Machine Co.,

MANUFACTURERS OF

Breaker Calenders,
Sheet Super-Calenders,
Web Super-Calenders,
Friction Calenders,
Plaiting Calenders,
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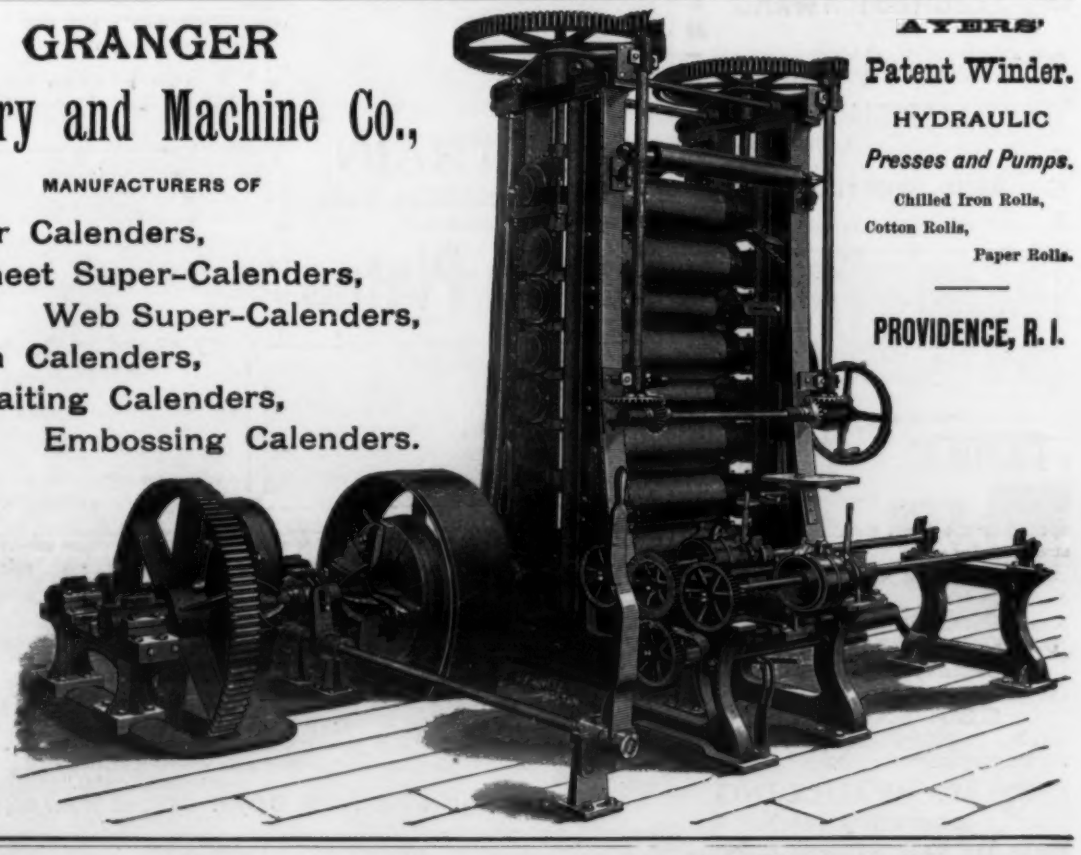


AYERS' Patent Winder.

HYDRAULIC Presses and Pumps.

Chilled Iron Rolls,
Cotton Rolls,
Paper Rolls.

PROVIDENCE, R. I.

The American Talc Co.,

MANUFACTURERS OF A

SUPERIOR QUALITY OF MINERAL PULP OF ALL GRADES,

PROVIDENCE, R. I.

Mines and Mill: FOWLER, N. Y. { Telegraph Address: GOUVERNEUR, N. Y.

NEW MILL. LATEST MACHINERY. STEAM POWER.

THE GENERAL FIRE EXTINGUISHER COMPANY,

CONTROLLING THE INVENTIONS AND APPARATUS PERTAINING TO AUTOMATIC SPRINKLERS OF

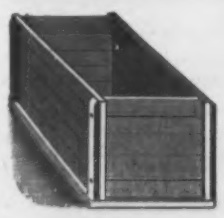
Frederick Grinnell, William Neracher, John Hill, William Kane and others.

INFORMATION AND PROPOSALS FURNISHED AT THE SEVERAL DEPARTMENT AGENCIES, NAMELY:

NEW YORK: 413 Broadway.
PHILADELPHIA: Mutual Life Building.
CHICAGO: 226 La Salle Street.
CLEVELAND: Society for Savings Building.
BOSTON: 173 Devonshire Street.
BUFFALO: City Bank Building.
ST. LOUIS: 710 Odd Fellows Building.
Also at WARREN, OHIO, and COLUMBUS, GA.

AND AT THE

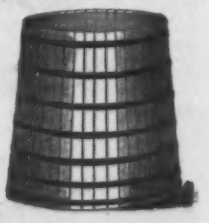
EXECUTIVE OFFICES, PROVIDENCE, R. I.



GEO. WOOLFORD, Manufacturer of all kinds of CEDAR TUBS FOR PAPER MILL WORK, DRAINERS, STUFF CHESTS, WATER TANKS, &c.

In sending for estimates state if measurements are inside or outside and thickness of wood desired.

2240-42-44-46-48 North Ninth St, PHILADELPHIA, PA.



Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D., trust deed, and Real, a mortgage on real estate.]

MIDDLE STATES.

Mortgagor.	*Amount.*
Henry Roemer, Newark, N. J	$600

WESTERN STATES.

Ida J. Pasteur, Ridge Farm, Ill	305
H. M. Voorhies, Knowlton, Ia	250
Minneapolis Book Manufacturing Company, Minneapolis, Minn	3,000
The American Constitution Printing Company, Cincinnati, Ohio (R.)	600
The Donaldson Lithographing Company, Cincinnati, Ohio	1,550

CANADA.

P. J. Veinot, Bathurst, N. B. (B. S.)	—
J. W. Gay, Moncton, N. B. (B. S.)	—
T. S. Farnham, Weymouth Bridge, N. S. (B. S.)	—

Accidents.

On May 20 Earl McBride, employed in the Christian Mill, of the St. Joseph Valley Paper Company, Elkhart, Ind., had his right hand mangled in the machinery.

Percy Pharmer, an employee in the pulp mill at Fort Miller, N. Y., had both arms and legs fractured by being caught in the machinery of the mill on June 5.

On May 20 a boy named Fred Reinke, employed in the Park Mills, Marinette, Wis., was the victim of an accident resulting in a double fracture of his arm. He attempted to catch a belt above him, and his hand was caught in such a manner that the bones above the wrist and elbow were broken.

In Town.

Mr. Gibb, New Orleans, La.; F. L. Stevens, North Hoosick, N. Y.; A. D. Remington and B. B. Taggert, Watertown, N. Y.; C. Dobilinski, Lambertville, N. J.; L. M. Howland, Sandy Hill, N. Y.; Charles E. Callender, Glendale, Mass.; F. W. Curtis, Newark, N. J.; Col. E. H. Haskell, and E. Storey Smith, Boston, Mass.; A. Adams, Chagrin Falls, Ohio.

General Notes.

The St. Louis Paper Company has been awarded the contract for paper for the State printing of Kansas.

Sealed proposals for supplying stationery to the Army Depot, New York, will be opened at the Army Building, 39 Whitehall street, on June 19.

Judgment for $4,356 was entered on Monday, June 4, against Street Cleaning Commissioner W. S. Andrews in favor of the Rice-Kendall Company, of Boston, for paper furnished to the old *Star* Printing Company, of New York, from October 5, 1887, to June 1, 1888.

The first book made of ground wood paper was recently placed in the Berlin, Germany, testing office for examination. It is said to be in good condition. As it was printed in 1852, very nearly half a century ago, the argument that wood paper had no durable qualities appears to be seriously shaken.

Sealed proposals for the purchase of waste paper of the Navy Department and its several bureaus and offices during the year ending June 30, 1895, will be opened at the Navy Department, Washington, D. C., on June 15. Sealed proposals for the same purpose will be opened at the Post Office Department also on the same day.

Attachments amounting to nearly $1,000 have been placed on the World Mercantile Agency, of New Haven, and the personal property of its treasurer, John H. McDonald. The agency is a joint stock company capitalized at $150,000, and is organized under the laws of Maine. It had offices in New York, New Haven, Boston and Portland. McDonald has collected bills for his subscribers and is said to have failed to turn over the money to them. It is believed that the agency is involved to the extent of about $5,000. The assets consist of the office furniture.

When the old firm of A. Wertheim & Co. were in business here they had a contention with Perkins, Goodwin & Co., the latter attaching the bank account of the former at the Importers' and Traders' Bank. To release the attachment A. Wertheim & Co. gave bonds, George P. Folts, of the Remington Paper Company, becoming the bondsman, the bond being for an amount not to exceed $4,000 and to be paid when legal proof was given that judgment had been duly taken in the case. Judgment was duly taken for about $4,500, and the bondsman was called upon to pay, the member of the firm of A. Wertheim & Co., Sigfried Wertheim, having failed and fled the country. Perkins, Goodwin & Co. brought suit to enforce the bond, and the defense was set up that there was no proof that the members of the old firm of A. Wertheim & Co. had been asked to pay the judgment, and that because of that the bond was not in force. This suit was withdrawn, the plaintiffs paying costs. Perkins, Goodwin & Co. at once took steps to make legal demand on the Wertheims in Germany, who were members of the old firm, and have now begun a new suit to enforce the bond. Mr. Folts, when asked to state his side of the case, declined to discuss it at all.

Notes on Coal Burning.

In some "Notes on Coal Burning" in the *Railway Review* C. M. Higginson says that economy in the use of fuel may be arrived at by more care in firing, by more perfect coal burning devices or by use of methods which will allow of burning with relatively good results, a cheaper grade of fuel. In stationary boiler plants a comparatively efficient combustion of bituminous coal can be effected with a very small output of smoke and with little expense, in many cases without the use of a single patented device. A large proportion of the valuable heating material of bituminous coal is in the hydrocarbons driven off when the coal is heated. A good Western soft coal, dried, consists of 55 parts fixed carbon, 30 parts volatile hydrocarbons and 15 parts of water, ash, sulphur and other waste products. The combustible part of a ton of coal would therefore contain 1,100 pounds of fixed carbon and 600 pounds of various carburetted hydrogen gases. The latter will contain on an average 500 pounds of carbon and 100 of hydrogen. The relative heating value of the amount of gas driven off when compared with that of the fixed carbon in the coal is as 7 is to 8, when expressed in amounts of water that would be evaporated from 212°. From the above figures it is seen that nearly one-half of the steaming value of this coal is contained in the volatile gases. Each pound of dry coal, constituted according to the above analysis, should evaporate about 14 pounds of water from a temperature of 212°.

Mr. Higginson says that too large a grate surface for the size of the boiler plant is often used, and more coal thus used than is economical. Experiments show that the bulk of the air necessary to burn the gases arising from bituminous coal must be admitted above the line of fire. The openings which admit the air should be small, that large quantities of cold air may not interfere with the steaming qualities of the boiler. The smaller the air jets the better the combustion of the gases. The air passages, too, should be near the top line of the burning coal. It has been found by trial that the best results are obtained when such passages equal one thirty-fifth of the grate area when natural draft is used. Anthracite coal requires only one-half that area, as only the carbonic oxide gas has to be provided for.

The air may be admitted through flues built in the bridge walls, through rows of holes in the side of the fire box, through dampers in the furnace doors or by leaving uncovered the ends of the grates near the fire doors. Various modifications for more thoroughly mixing the gases and air are used.

Electric Lamps.

It has been lately shown by Professor Nichols, the electrician, that in the average incandescent lamp, excepting the latest three watts per candle lamp, the light giving efficiency is only 5 per cent. of the total energy radiated from the filament, the remainder being lost as heat. He has also demonstrated that the superiority of the arc lamp in the matter of candle power per horse power is not nearly so great as has been commonly assumed; so that although the arc lamp may, when measured in the best and most favorable position, develop six and seven times as much light per horse power as the incandescent—when their mean spherical intensities are compared—the actual difference otherwise is far less, and the ratio is reduced to only 2 to 1 in favor of the arc lamp.

On the other hand, however, arc lamps are usually placed in such a position as to bring their best light giving value into practical effect. In order to avoid the difficulties which have been met with in the method of measurements for the light giving value of illuminants, Professor Nichols suggests such a change as will take account of the fact above noted, viz., that the candle power of a lamp does not represent its light giving value, and in the case of the incandescent lamp temperature and area of radiating surface should be made account of.

Tests of a new invention, known as the enameling process for steam boilers, are shortly to be carried out by a board of engineer experts at the Brooklyn Navy Yard. The new method, it is claimed, will obviate the frequent troubles arising from incrustation and corrosion in boilers. It consists in the coating of the inner surfaces with a deposit in the form of a smooth, extremely thin black enamel. This enamel, it is asserted, is not attacked by acids.

Apparatus for Coating Paper.

The accompanying illustration shows the design of an improvement in apparatus for coating one or both surfaces of paper or other similar fabric.

Figure 1 is a longitudinal elevation, in both diagram and cross section, showing an ordinary double deck drying machine used in paper manufacture, and one form of apparatus for applying the coating to one face of the paper, the coating device being mounted on the drier and practically forming a part of it. Fig. 2 is a similar view, but with the first three drier rolls to the right, the press rolls, the upper tier of drier rolls and upper coating device (seen in Fig. 1) omitted, and showing two additional drier rolls to the left, and a lower coating device for applying the glaze to the other face of the paper. The mechanism shown in this view may be so arranged as to be really a continuation of that shown in Fig. 1, except that it is located in advance of the calender rolls, as it is intended that the machine shall be adapted to coat one or both sides or faces of the paper in one continuous passage through the machine intermediate the press and calender rolls, and Fig. 3 is a plan view to show more clearly

Fig. 1.

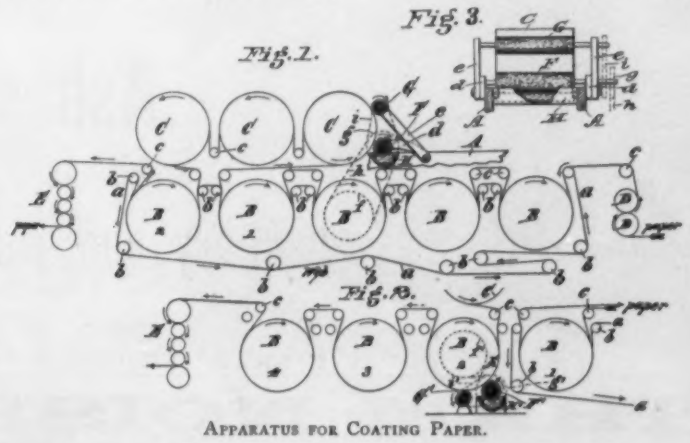


Fig. 3.

Fig. 2.

Apparatus for Coating Paper.

the means for supporting the brushes for applying the glaze or other material.

The principal object of the invention is to apply the glaze or other material in a cheap and expeditious manner without the use of extra and costly mechanism.

A transverse vat or trough (containing the liquid glaze, or other surfacing matter to be applied) is mounted on the supporting drier frame adjacent the lower portion of an upper drier cylinder or drum. A pair of rotary, circular brushes is mounted in a suitable frame above the vat or trough, parallel both therewith and with the drier cylinder, and a series of endless chains or belts are applied to sprocket wheels or pulleys on the shafts of the brushes to connect them with a driving wheel on the shaft of one of the lower drier cylinders most convenient, the latter (this belt arrangement) being seen in dotted lines in Fig. 1. One of the circular brushes rotates slightly within the vat, taking or carrying glaze therefrom and applying it by peripheral contact to the paper passing over the adjacent cylinder, the other or accompanying rotary, circular brush in the frame, uniformly and smoothly spreading or distributing the glaze over the surface of the paper.

The glaze device comprises a vat and accompanying carrier and smoothing brushes, adjacent to both an upper and a lower drum, whereby one or both faces of the paper may be coated in the drier. Both sets may be contained in a paper drier, and operated singly or together, or only a single vat and accompanying brushes supplied, as desired.

Instead of using circular bristle brushes, as shown, rollers of any suitable material and construction can be used to apply and distribute the glaze. Any suitable well-known means (such as ordinary doctors) may be used or supplied in connection with the carrier brush to remove superfluous glaze from the brush in advance of the application of the glaze to the surface of the paper.

A represents the supporting frame; B, each one of the lower tier or series of ordinary drier cylinders; C, each one of the upper tier of drier cylinders; D, D, the ordinary press rolls between which the paper travels or passes, as customary, on its way to the drier; E, vertical series of the usual calender rolls between which the paper travels after being first glazed or otherwise coated in its initial passage through the drier; *a*, the usual endless web or carrier; *b*, each of the web idler rolls; *c*, each of the paper idler rolls; F, the rotary glaze carrier and applying brush journaled at its ends in the arms *d*, which project from the frame A; G, the rotary glaze spreading and smoothing brush journaled at its ends in the arms *e*, which also project from the frame A; H, the glaze or coating trough or vat, hung on the frame A beneath the carrier brush F, convenient for the latter to charge or feed therefrom; *f*, a pulley on a lower drier cylinder shaft; *g*, a pulley on the shaft or carrier brush F; *h*, a driving belt running over the pulleys *f* and *g*; and *i*, a belt running over the pulley *g* and a pulley on the shaft of the smoothing brush G.

In practice (for fine paper), rolls or very fine brushes will be used to apply the glaze or other coating, and coarse brushes only for coarse paper. The journals of both the carrier and smoothing brushes are preferably mounted in the customary, ordinary adjustable bearings whereby allowance is made for varying thicknesses of paper and wear of the bristles or faces of the glaze distributors.

In Fig. 2 the coating device is shown mounted at the bottom of the machine adjacent a lower drier roll, whereby the glaze is applied to the other side of the paper, as it passes through the drier. The drier rolls 1 and 2 of Fig. 1 are shown in this view, and additional lower drier rolls 3 and 4, also shown, to complete the drying operation after the lower coating device has performed its said function. The reference letters and figures of Fig. 1 are carried out in this view, excepting those of the coating device, all of which are primed ('), and the belt or chain f' crossed so as to communicate the proper motion from the pulley on roll 2 to the pulley on the shaft of brush F'.

The web *a* in this view is moved or directed back to roll 1, and no web is carried over the rolls 2, 3 and 4, thus permitting the coating devices to apply the glaze without interference of the web.

In practice the glaze or coating is preferably applied before the paper becomes thoroughly dry, but it may be done in a continuous passage through the machine, after it is dry, before reaching the calender rolls.

Accidental Inventions.

Some of the most successful and remarkable engineering enterprises have been claimed to owe their existence to circumstances which, when considered in themselves, seem far too trivial to have produced such important results. Though opinions be divided as to the first transmission of power by electricity, for example, it has been strenuously maintained in some quarters that accident, pure and simple, was the cause of the great discovery, and an interesting story has been told for many years of the attending circumstances. This is to the effect that at the International Exhibition at Vienna, in 1873, the Gramme Company exhibited two dynamo machines for plating purposes. One of these machines was in motion, and a workman who noticed that some cables were trailing on ground, thinking that they belonged to the second machine, placed them in its terminals. To the surprise of everybody this second machine immediately began to turn, and it was then discovered that the first dynamo was driving the second. It would be strange indeed if there were not other versions of this story, and accordingly we find several somewhat different accounts, from all of which, however, it would appear that the development of any measurable power in a machine taking its supply of electricity from a primary dynamo was something wholly unexpected and correspondingly startling.

Closely analogous is the narrative of the origin of one of the most successful foundry blowers now in use, according to which the inventor was attempting to construct a water motor which persistently refused to go round when the water was turned on. In the determination to learn what was wrong a belt connection was made with a line shaft, so that the motion of the machine might be studied. By the same means a reverse motion was given to it, and the way in which it threw the water, and, after the water had been exhausted, drove a current of air, suggested an entire change of purpose, and the machine was finished and put on the market as a blower instead of as a water motor, and thousands have been built since. The story, often told with various modifications of detail, serves as an additional illustration of the fact that inventors frequently stumble upon success in entirely unexpected directions.—*Cassier's Magazine.*

Legal Decisions.

[REPORTED FOR THE PAPER TRADE JOURNAL.]

Validity of Mortgage of Merchandise as to Creditors.—A mortgage of merchandise, permitting the mortgagor to remain in possession and sell in the usual course of business, paying the proceeds to the mortgagee till the debt is extinguished, is rendered void against creditors by a parol agreement that the mortgagor may retain from the proceeds a small allowance for the support of his family.—*Wile v. Butler, (Court of Appeals of Colorado), 34 Pac. Rep. 1110. (64.)*

Discharge of Indorser of Negotiable Instruments.—Where bonds pledged as security for the payment of notes are afterward by consent of the pledger, but without the knowledge of the indorser of the notes, postponed to other liens on the mortgaged property, the indorser is thereby released.—*Nassau Bank v. Campbell (Supreme Court, General Term, First Department), 26 N. Y. Supp. Rep. 831 (46).*

Liability of Drawer of Certified Check.—Though the drawer of a check, before delivering it, has it certified, the drawee stating that he wished it certified, he will not be relieved from liability thereof, though presented in due season.—*Randolph National Bank v. Hornblower (Supreme Judicial Court of Massachusetts), 35 N. E. Rep. 850 (47).*

Right of Redemption by Judgment Creditor.—A mortgagee who has obtained a decree of foreclosure is a "decree creditor" within the meaning of the statutes, which declares that "any decree or judgment creditor" may redeem from an execution or foreclosure sale after twelve and within fifteen months from the sale.—*Whitehead v. Hall (Supreme Court of Illinois), 35 N. E. Rep. 871 (50).*

Waiver of Provisions of Policy.—An express provision in a policy of insurance that the company shall not be liable on the policy until the premium is actually paid is waived by the unconditional delivery of the policy to the assured, as a completed and executed contract, under an express or implied agreement that a credit shall be given for the premium, and in such a case the company insuring is liable for a loss which may occur during the period of credit.—*Griffith v. New York Life Insurance Company (Supreme Court of California), 36 Pac. Rep. 116 (83).*

Liability of Corporations for Undertaking Unauthorized Employment.—Where a corporation, acting through its managing officers, knowing that a business outside its charter powers had been undertaken by persons assuming to act as agents in so doing; that the income of the business had been received, and the expenses of it paid by the treasurer in his official capacity, and that the balance of the receipts was in its treasury, adopted the action of its treasurer, and elected to keep its money, it is proper for the jury to find a ratification of the unauthorized acts. Ratification of an unauthorized act will make the principal liable for an injury resulting from the negligence of the agent in doing the act.—*Nims v. Hermon Boys' School (Supreme Judicial Court of Massachusetts), 35 N. E. Rep. 776 (120).*

A Free Advertisement.

"A New Departure."

Without comment the announcement is made that to secure a change in the date of publication, and also to make certain radical changes in the style and size of this journal and to complete Volume XVIII., the present number will stand for May and June, the July number appearing the first of July in entirely different form.

Paper and Press has for years taken the foremost position in its field, and the contemplated departure to newer ideas and features more in harmony with the printorial age will be no backward step.

Prospectuses are wooden promises, to be fulfilled only in the imagination of the enthusiastic beginner. New Paper and Press will take its position in the procession with the first number. Wait and see.

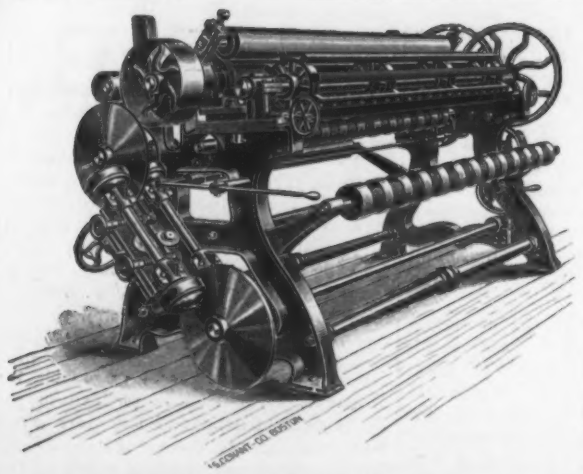
W. M. PATTON."

Philadelphia, May–June, 1894.

Twice one makes two, according to old-fashioned arithmetic; but by "a new departure" in arithmetic as above, twice one makes one! Subscribers and advertisers could figure according to this "new departure," if tired of old arithmetic.

By the way, What is "a new departure?" "Foremost position" is good; hence "a new departure" must be backward, or there was no "foremost position" before.

"Wooden promises" are fine, but not quite so fine as twice one makes one.



THE "HORNE" FRICTION CUTTER

IS IN ADVANCE OF ANY CUTTER IN USE TO-DAY.

WE HAVE EIGHT RUNNING IN ONE FINISHING ROOM.

AFTER USING ONE SEVEN MONTHS A CUSTOMER SAYS:

"You have the Perfect Cutter. We are sure it will save its cost in one year in the saving of waste paper alone."

THE J. H. HORNE & SONS CO., LAWRENCE, MASS., U. S. A.,
MANUFACTURERS OF PAPER MILL MACHINERY.

THE GARDNER PULP CO.,

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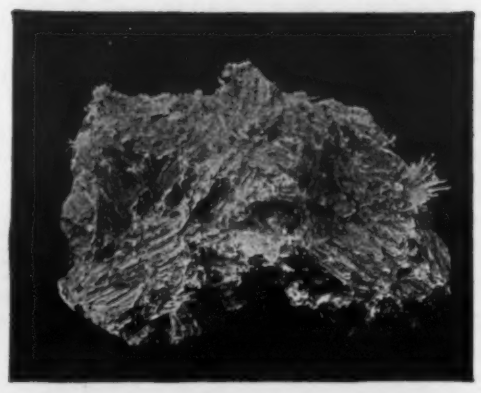
MANUFACTURERS OF

Asbestos Pulp and Fibrous Talc

FOR PAPER MAKERS.



THE GOTHAM NOISELESS SCREEN.

Screen Plates Stationary. No Accumulations to form Strings and Lumps. Runs at a Slow Speed—150 Revolutions per Minute. Variable Stroke in Blast. The Up Stroke is Double the Speed and of One-Half the Duration of the Down Stroke. A Quick, Forcible Blast Up, with a Slow Suction Down.

IT FILLS THE BILL!

First Screen made October 1, 1891, and used constantly since without repairs. Read the record for two years.

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NEW YORK—Empire Pulp Co., Black River, 1; Globe Paper Co., Brownville, 1; Union Pulp Co., Carthage, 1; Frontenac Paper Co., Dexter, 1; Leonard & Gilmore, Dexter, 1; Outterson Paper Co., Brownville, 3; Oswego Falls Pulp Co., Fulton, 3; Gouverneur Wood Pulp Co., Gouverneur, 4, two orders; Knowlton Paper Co., Watertown, 1; Ontario Paper Co., Watertown, 1; Herkimer Paper Co., Lyons Falls, 3 orders; G. R. P. Gould, Lyons Falls, 1; Gould Paper Co., Port Leyden, 1; Racquette River Pulp Co., Colton, 3; Estate of Richard Carter, Glendale, 1; Charles Wackerhagen, Canaan Four Corners, 1; Smeallie, Phillipe & Co., Amsterdam, 1; O. E. Martin, Norwood, 1; Jefferson Paper Co., Black River, 1; St. Lawrence Paper Co., Dexter, 3; Payne & Blinn, Chatham, 1; M. M. Pillsbury, Napanock, 1; Victoria Paper Co., Fulton, 2 orders; Niagara Falls Paper Co., Niagara Falls, 16; Philip McGuire, Forestport, 1; Hartland Paper Co., Middleport, 1; Standard Pulp Co., Brown's Falls, 3; Fulton Paper Co., Fulton, 2, two orders; High Falls Sulphite Pulp Co., Potsdam, 4; Watertown Paper Co., Watertown, 1; Lewis, Slocum & Lefevre, Beaver Falls, 3.

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MASSACHUSETTS—Chas. Callender, Glendale, 2; Merrimac Paper Co., Lawrence, 2; Connecticut River Paper Co., Holyoke, 1; Carew Manufacturing Co., South Hadley Falls, 1; Rice, Barton & Fales, Worcester, 3, two orders; Eaton, Dikeman & Co., Lee, 1; Bacon Paper Co., Lawrence, 1.

VERMONT—Fall Mountain Paper Co., Bellows Falls, 5 orders; Wyman, Flint & Sons, Bellows Falls, 2; National Metal Edge Box Co., Readsboro, 1.

NEW HAMPSHIRE—Glen Manufacturing Co., Berlin Falls, 3; Sugar River Paper Co., Claremont, 1; Wilder & Co., Ashland, 1.

MAINE—Umbagog Pulp Co., Livermore Falls, 2; Bangor Paper Co., Orono, 4; Jay Paper Co., Jay, 1; Rumford Falls Paper Co., Rumford Falls, 20; Hollingsworth & Whitney, Gardiner, 1.

CONNECTICUT—White & Wells, Waterbury, 1.
VIRGINIA—Columbia Paper Co., Buena Vista, 2.
INDIANA—Anderson Paper Co., Anderson, 3.
WISCONSIN—Kaukauna Paper Co., Kaukauna, 1,
MINNESOTA—St. Cloud Paper Co., St. Cloud, 1.
MICHIGAN—Alpena Sulphite Fibre Co., Alpena, 2,
TENNESSEE—Tennessee Fibre Co., Memphis, 1.

BROWNVILLE IRON WORKS, Brownville, N. Y. ALSO MANUFACTURERS OF Wet Machines, Centrifugal Pumps, &c.

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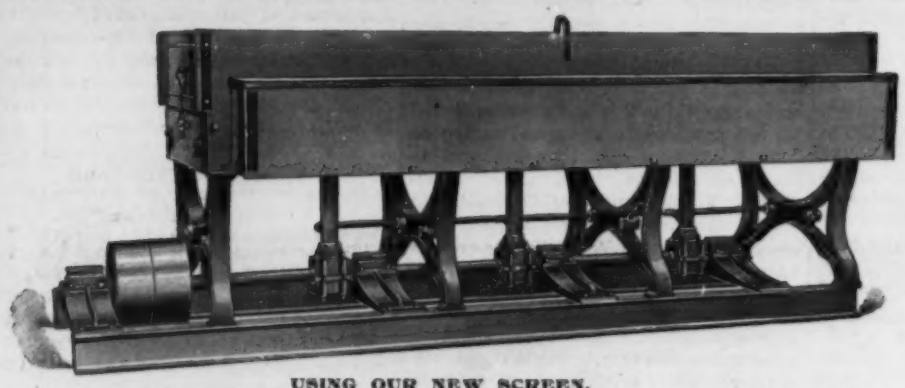

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Glen Manufacturing Co., Berlin Falls, N. H., 13; Barclay Fibre Co., Saugerties, N. Y., 5; Katahdin Pulp and Paper Co., Lincoln, Me., 10; Haverhill Paper Co., Haverhill, Mass., 2; The J. & J. Rogers Co., Ausable Forks, N. Y., 10; New York and Pennsylvania Co., Johnsonburg, Pa., 1; H. J. Roberts, Birmingham, Conn., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 4; Piscataquis Falls Pulp and Paper Co., Enfield, Me., 2

USING OUR OLD SCREEN.

Piscataquis Falls Pulp and Paper Co., Enfield, Me., 12; Howland Falls Pulp Co., Howland, Me., 10; Penobscot Chemical Fibre Co., Great Works, Me., 4; Willamette Pulp and Paper Co., Oregon City, Ore., 1; Bangor Pulp and Paper Co., Basin Mills, Me., 2; Kane's Falls Pulp Co., Fort Ann, N. Y., 2; Westmoreland Paper Co., West Newton, Pa., 6; Dexter Sulphite Pulp and Paper Co., Dexter, N. Y., 3; Otis Falls Pulp Co., Livermore Falls, Me., 3; Michigan Sulphite Co., Port Huron, Mich., 2; Singerly Pulp and Paper Co., Singerly, Md., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 7.

USING OUR BARKERS.

The J. & J. Rogers Co., Ausable Forks, N. Y., 4; Katahdin Pulp and Paper Co., Lincoln, Me., 4; High Falls Sulphite Pulp and Mining Co., Potsdam, N. Y., 2; Glen Manufacturing Co., Berlin Falls, N. H., 4; Oswego Falls Pulp and Paper Co., Fulton, N. Y., 1; Treadwells Mills Pulp and Paper Co., Plattsburgh, N. Y., 3; Shenandoah Pulp Co., Harper's Ferry, W. Va., 3; Miller Bros. & Co., Glen Miller, Ont., Canada, 1; Piscataquis Falls Pulp and Paper Co., Enfield, Me., 6; Kane's Falls Pulp Co., Fort Ann, N. Y., 1; Manufacturing Investment Co., Madison, Me., 9; Umbagog Pulp Co., Livermore Falls, Me., 2; Moosehead Pulp and Paper Co., Solon, Me., 1; Bennington Falls Pulp Co., Middle Falls, N. Y., 1; Saranac River Pulp and Paper Co., Cadyville, N. Y., 1; Smith & Martin, Plattsburgh, N. Y., 1; Otis Falls Pulp Co., Livermore Falls, Me., 1; Hollingsworth & Whitney Co., Waterville, Me., 3; Gilbert & Bell, Waterford, N. Y., 1; Laurentide Pulp Co., Montreal, Canada, 1; Hudson River Pulp and Paper Co., Palmer's Falls, N. Y., 1; Battenkill Paper Co., Greenwich, N. Y., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 1.

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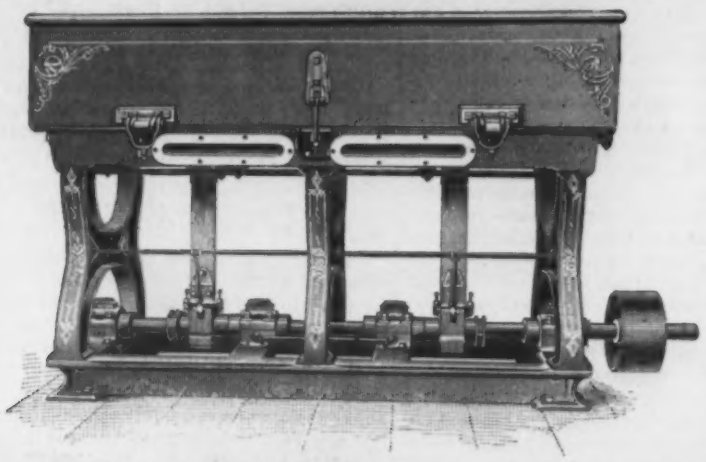

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"THE SUCCESS" LEADS THEM ALL.

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The Burgess Sulphite Fibre Co., Berlin Falls, N. Y.	12	Chemical Paper Co., Holyoke, Mass.	2
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Combined Locks Paper Co., Combined Locks, Wis.	4	A. H. Hubbard Co., Norwich, Conn.	2
Wilkinson Bros. & Co., Derby, Conn.	5	Agawam Paper Co., Mittineague, Mass.	1
Sandy Hill Power and Pulp Co., Sandy Hill, N. Y.	4	The Worthy Paper Co., Mittineague, Mass.	1
The Riverside Paper Co., Holyoke, Mass.	4	Chester Paper Co., Huntington, Mass.	1
		Bayless Paper Co., Binghamton, N. Y.	2
		Wagman & Thorp Co., Fort Miller, N. Y.	2
		Moore & Thompson Paper Co., Bellows Falls, Vt.	1
		Allen Bros. Co., Sandy Hill, N. Y.	1
		Hudson River Water Power and Paper Co., Mechanicsville, N. Y.	1
		Ohio Paper Co., Niles, Mich.	1
		Otis Falls Paper Co., Livermore Falls, Me.	19
		J. D. Mulrenan, Hadley, N. Y.	2
		Saranac River Pulp and Paper Co., Cadyville, N. Y.	2
		Herkimer Paper Co., Herkimer, N. Y.	3
		Winnipisiogee Paper Co., Franklin, N. H.	2
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SPECIAL NOTICE.

Hofmann's Treatise ON Paper Making.

IN 1873—twenty years ago—Carl Hofmann first published his ***TREATISE ON PAPER MAKING.*** He was then, and for some years had been, a practical paper maker in America. His experience in the trade abroad, as well as in this country, and his technical education and knowledge enabled him to be specially adapted for the work; hence "Hofmann's Treatise on Paper Making" took high rank at the start, and soon became *a* standard work on the subject throughout the world. It was published in English, German and French, and had wide sale in all three languages.

As years passed it became *the* standard work, and for the past decade copies have sold at large prices, often as high as $30 each, and occasionally for more money. The original book consisted of 422 pages, 8¼ by 11 inches in size.

Mr. Hofmann returned to Germany more than eighteen years ago and settled in Berlin. He established *The Papier Zeitung*, and in due course, about seven years ago, began to write his second and latest Treatise. Thus far he has printed and published probably 1,200 pages in German, and in parts of forty-eight pages, including cover, profusely illustrated by wood cuts. When finished the book will consist of about 1,600 pages (pages size same as in first book), illustrated by 1,500 wood cuts.

We have contracted to translate and publish the work in English in twenty parts, of about eighty pages each, at intervals of not less than sixty days, and at a cost of *one dollar cash, in advance, for each and every part.* When the enterprise is completed the twenty parts will sell, *unbound*, for *twenty dollars.* The binding will be extra. Subscribers can themselves have the parts bound, or have us bind them at extra expense; but it should be noted that no money will be saved by waiting until THE TREATISE is completed and bound.

We shall announce within some weeks when "PART ONE" will be ready for delivery.

Orders can be placed now, or later if preferred; and subscribers can send *one dollar* or *six dollars*, which latter would pay for six parts during a year.

We cannot accept any order that is not accompanied by the cash.

Every manufacturer of paper or pulp, every superintendent of a mill, every machine tender, every man whose life-work consists in making or selling paper in the United States, Canada, and all over the world, except Great Britain and the Continent of Europe, should send us his subscription. We will furnish each part postpaid. We will print and ship the English Edition for the European market, but cannot accept orders therefrom.

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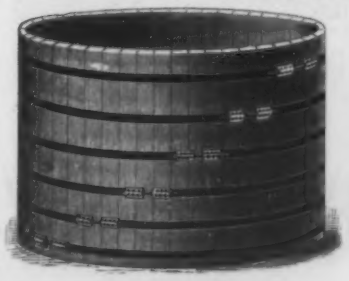

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FROM SIX TO SIXTY-SIX INCHES DIAMETER.
Are in practical operation under heads from 4 to 100 feet head: are strong, durable and give high efficiency.

BEATING ENGINES
Cast Iron or Wood Tubs.
Made heavy and strong, double lightered, with well made Cone Washers.

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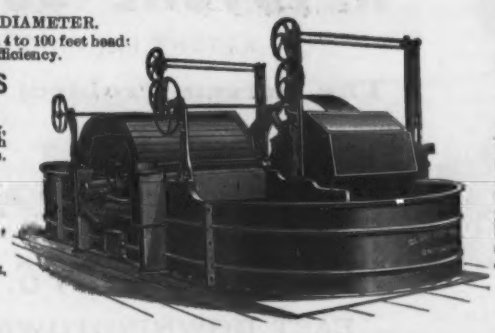

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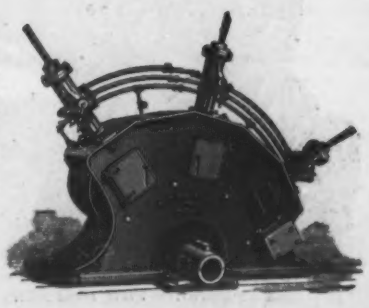

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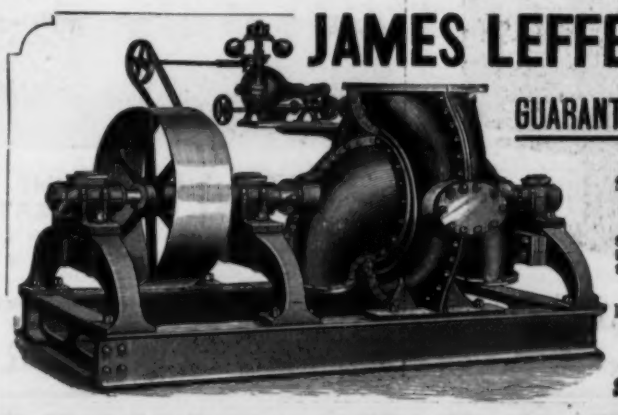

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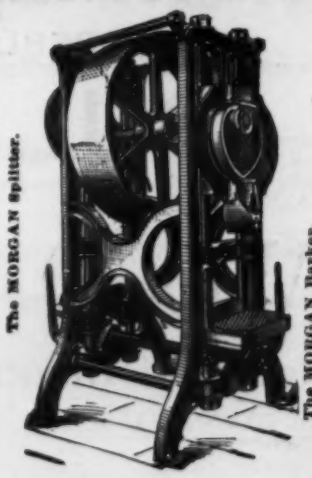

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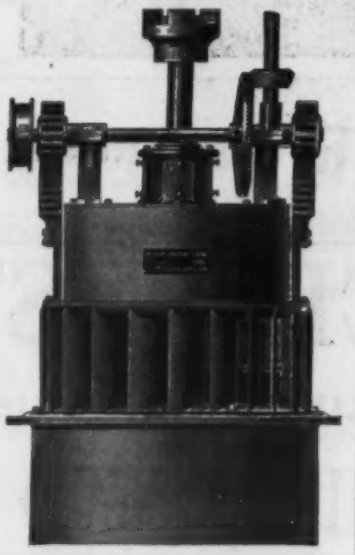

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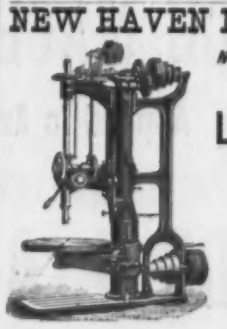

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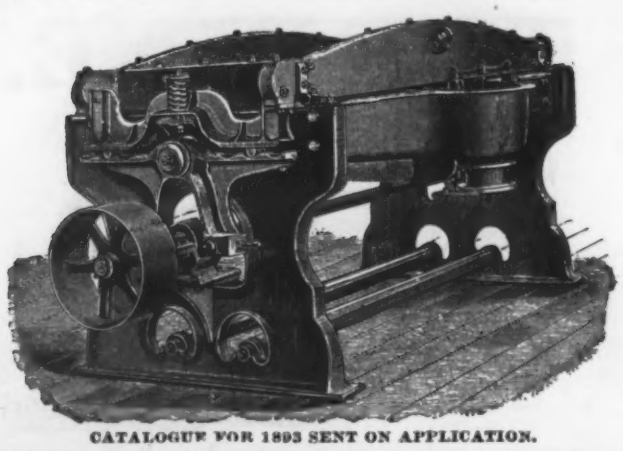

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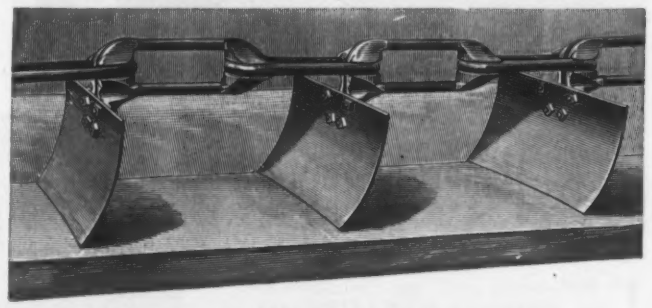

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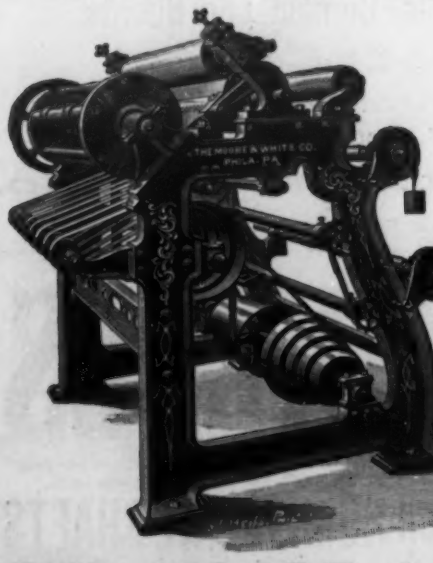

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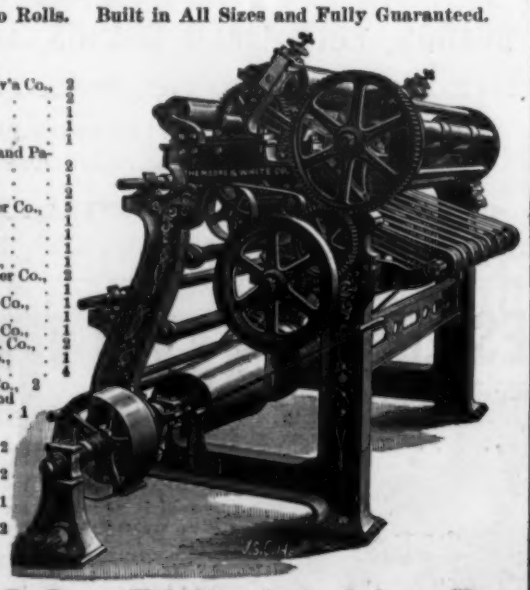

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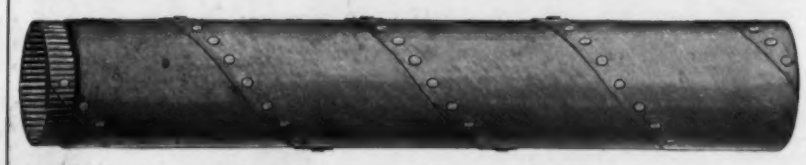

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The Eight Hour System in England.*

What is popularly known as the "eight hour movement," or more specifically, the movement to make eight hours a legal day's work, is once more attracting attention in England. Renewed prominence is given it by the reports of trials accorded the system by prominent manufacturers and the publication of results in the press. Though attempted legislation in this direction has been several times defeated, the fight is to be renewed, and the eight hour bill, it is said, will soon be before Parliament. I am informed that the Navy and War departments are making the experiment of working their laborers and artisans eight hours per day, and that other branches of the Government service will soon try it. Should it prove the success it appears to be under private trial, there is reason to suppose it will be approved by the Government, if it again comes forward as a proposed law. It is receiving the attention of the local governing bodies throughout the country, and is fast achieving general popularity. In Bradford, a majority of the corporation employees, including the police, are on duty but eight hours per day.

One of the most important tests of the eight hour plan has been made by the Salford Iron Works, located near Manchester. William Mather, M. P., the senior partner in this firm, has recently made a report on a year's experience in working the employees forty-eight hours per week. The report is addressed generally to employers and workmen in the engineering and machine making trades, and was given to the public March 26 last. In a brief introduction Mr. Mather states that his object in making known the results of a trial year in working on the eight hour system, unsolicited either by employees or trades unions and at the firm's own risk, was to prove how far the widespread desire for shorter hours of work might be met without danger to the mechanical trades, or whether it must be resisted in the interests of all concerned. The wages paid were the same as for fifty-three hours per week. The full complement of men at the Salford Iron Works is 1,200. The trades represented in the works are pattern makers, iron and brass molders, smiths, coppersmiths, tin plate workers, engine fitters, millwrights, electrical mechanics, turners and fitters, brass founders, boiler makers, planers, drillers, borers, machine tool makers, joiners and laborers. The character of the work was the same as that turned out during previous years, comprising textile and other machinery.

*Report by Claude Meeker United States Consul at Bradford.

The trial was during a year of exceeding depression, and when the prices obtained for the output were the lowest on record, but the invoice value of the goods produced amounted to the average value of the six preceding years. This was regarded by Mr. Mather as an unfavorable condition for the test, because, with five hours less work per week for each man without reduction of wages and with prices of the product lower than in any preceding year, it was felt that the ratio of labor cost to selling price would be abnormally high. All the productions were subject to keen competition at home and abroad. No monopolies of any kind were included in the year's trial. One-third of the men employed were on piecework wages, and that system received a thorough trial, as well as the weekly wage system. No extra preparations were made for the year's trial, and no unusual instructions were given. Mr. Mather's own language best explains the method adopted to insure accuracy in the trial:

In order to carry out the trial with scientific precision and care, a very competent engineer accountant, a member of the staff at the works, who was perfectly familiar with the subject, having occupied the position for some years, was deputed to take daily and weekly notes of the smallest details of time and cost throughout the year. His method of keeping the books relating to cost and production and the statistical knowledge he possesses, gathered from a large experience of all questions involved in the various processes of our manufactures, render the results which are recorded in the report absolutely correct and trustworthy.

The inauguration of the year's trial was arranged with the officials of the Amalgamated Society of Engineers and with the approval of the unions.

For the purposes of the test, work began March 1, 1893, and terminated February 28, 1894. The figures taken as the standard of comparison were the wages for the six previous years at fifty-three and fifty-four hours per week. The production during the trial year was actually greater, but the "turnover," on account of cheap prices, was somewhat less. This resulted in showing an increase of 0.04 per cent. in labor cost, but it is rather a remarkable fact that the economy in shorter hours for burning gas and fuel, for wear and tear to tools, machinery, &c., amounted to a saving of 0.04 per cent., thus exactly equaling the increased labor cost. In the fifty-three and fifty-four hours' work the lost time amounted to 2.46 per cent., while in the forty-eight hours' work it amounted to but 0.46 per cent.

The result of the trial on piecework was looked forward to with most interest, it being the natural assumption that every man was already doing his best in this manner of work. The firm divided the year into three equal parts to test the results in this connection. In the first period, the wages realized were 1.76 per cent. less than the standard piecework wages; in the second, 1.58 per cent. less; and in the third, 0.78 per cent. less, the average for the year coming to 1.41 per cent. less than the standard. These figures, it is argued, show a steady adaptation to the altered conditions, and indicate that, as the work proceeds in the new year, the difference will entirely disappear. The piecework rates were not advanced in any way during the year.

Mr. Mather was so impressed with the new system that he recommended the Government departments to adopt it, and urged it upon the War, Admiralty and Post Office departments. To this end he was invited to meet the chiefs of these departments, and, since that time, both the War and the Admiralty Departments have adopted the system for laborers.

Mr. Mather observes in his report that it has been demonstrated that the two morning hours before breakfast are not worth the pains and trouble they cost, whether to the work people or the employers. He advances the proposition that these two hours' work must be damaging, both physically and mentally, or why should these men perform just as much work when these hours were struck off as when they were employed? The conclusion is that the two hours are worthless as to time and diminish the vigor, freshness and brightness of the men. Under the new conditions the men work more in harmony with natural laws, instead of against them. The men have a better home life, because every man can now associate with his family before leaving for the day, and the breakfast table may give him a good "send off" in a cheery spirit that maintains him in all he does. Of course the system abolishes the "overtime" practice, in which extra wages are obtained at too great a cost to the workman. The double shift system is better, but, it is urged, the true means for larger production is increased producing power in men and machinery. Men should be worked only so long as they work at their best. When this stage is passed there is no true economy in their continued work. Concluding, the author of this report says:

Our year's trial has convinced me that we have found the happy medium in the number of hours during which only one meal and one stoppage are needed, and this resolves itself into the eight hour day, or forty-eight hour week.

Extracts of reports from foremen of different departments are given, showing that the men were more steady at work, more cheerful and less given to insobriety while on the eight hour system. The moral tone was also improved, and all seemed brighter and more cheerful.

Almost equally important has been the trial given the eight hour system by the Sheffield Smelting Company, in which another member of Parliament—J. H. Wilson—is a principal. At this place the plan has been in operation for two years. The result has been summed up as follows:

A careful comparison has been drawn between the result of the working of the past two years and that of the two preceding. The wages of the two years before and the two following the change have been taken and compared with the total amount of material smelted and the amount of bullion produced, and it is found that the cost in wages for both—per ton of material smelted and per ounce of bullion produced—had been slightly less under the new scheme. The effect on the work people has been notable. The men have been fresher and brighter in every respect. Instead of, as in former years, dragging out the latter portion of their time tired and weary, they have shown an increased cheerfulness and interest which has been manifested in both the quality and quantity of the work accomplished.

The figures taken as the standard with which to compare results were those of the years 1890 and 1891, during which the average working hours were fifty-four and fifty-five per week, and in some departments even longer than that. The production has been similar in amount, there being, perhaps, a slight increase in the trial years. It has been found that in the latter period the men have earned practically the same wages as under the old régime. In a few isolated cases the abolition of overtime has slightly reduced the gross earnings, but in most cases there has been no reduction except the very substantial one in the hours of labor. In comparison with the work done, no more men were employed than was formerly the case, and, curiously enough, in many instances the same men in the shorter hours were found to do fully as much work as they formerly did. The main point is that the work people, by being fresher and untired, are able to keep up a better pace throughout the day.

Attention must be called to the serious depression of trade caused by the coal dispute, during the greater portion of which the firm was not at full work, and during a few weeks almost at a standstill. Notwithstanding this, the men were all kept at work and did not lose through the action of the firm the equivalent of one man's work for a week. Taking this fact into consideration, it is clear that but for the want of work, incident on the lockout, the men would certainly have done more for the same wages, and the slight margin of difference between the quantity done in the two would have been more obvious. Under the present system, it may be mentioned, the ordinary day men start work at 7 instead of 3:30 in the morning, as was formerly the case, leave work at 5 instead of 5:30, and stop working on Saturday at 1 o'clock instead of 1:30.

The system has therefore been permanently adopted.

Colorado and Utah citizens have determined to memorialize Congress to build two large canals to reclaim lands in Western Colorado and Eastern Utah. The memorial contemplates the withdrawal from entry of the lands to be reclaimed, of which there are nearly a million acres in Utah alone. The estimated cost of the proposed canal is $5,000,000.

It is stated in the ninth annual report of the Leipsic Paper Testing Institute that the number and importance of the orders for testing paper have again increased in the past year. Municipal and government boards have intimated their intention of regularly consulting the institute as to the quality of the papers supplied to them. The law courts have also called upon the institute to give expert evidence, and the proprietor has been nominated paper expert for the law courts in Leipsic. The reputation of the institute is not confined to Germany, for orders were received from England, France, Holland, Hungary, Switzerland, Finland, Sweden, Norway and Russia. The institute makes a special feature of reports on the comparative values of samples of papers sent in, so that buyers may judge of the respective qualities of papers which they have not yet tried.

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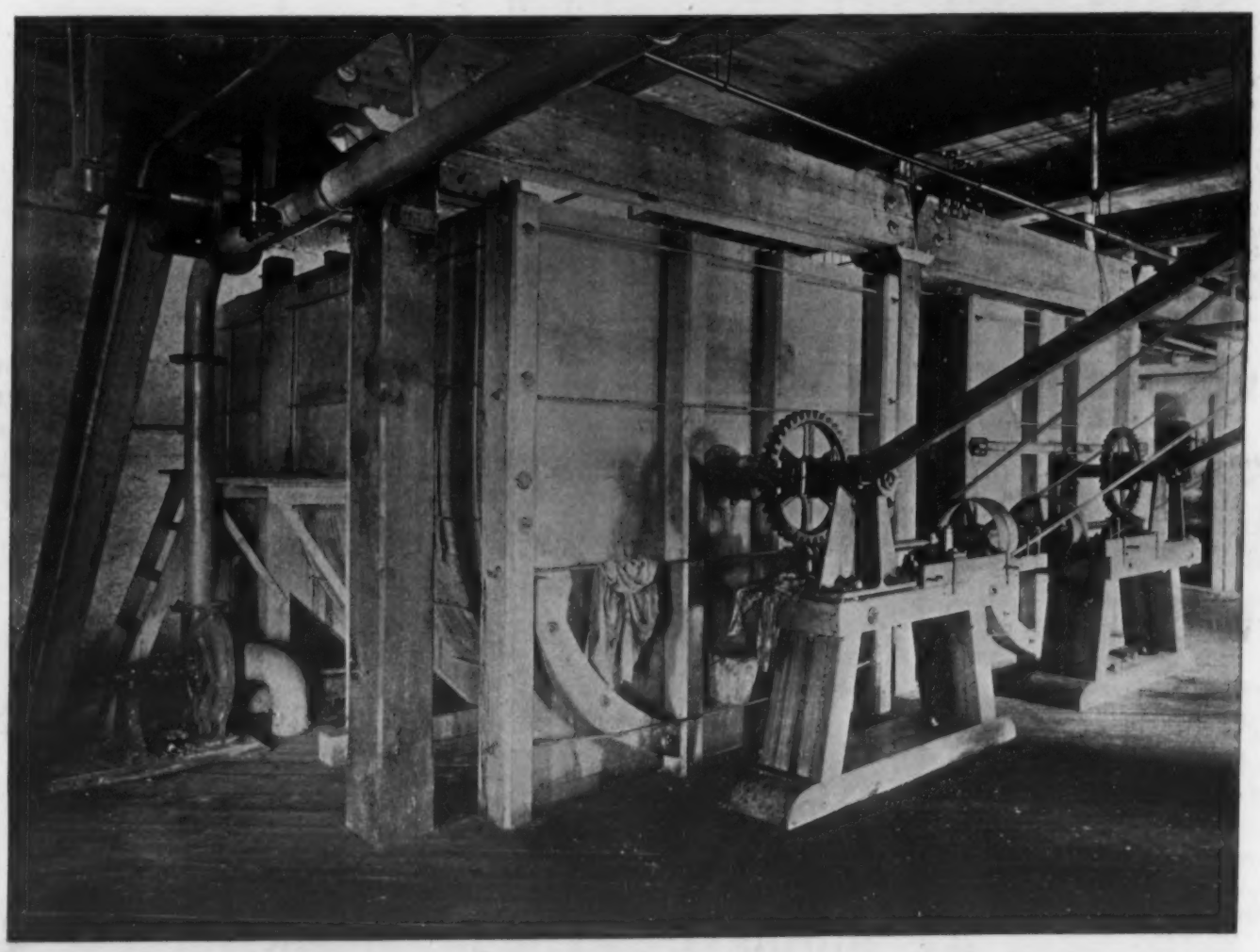

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Coal Dust Firing Apparatus.

This invention is a new method of feeding a furnace for fine fuel. It dispenses with the usually applied artificial blast of air or steam for carrying the fine fuel into the combustion chamber by making use for this purpose of a current of air of atmospherical pressure drawn into the combustion chamber by the natural draft of the chimney.

Figure 1 represents a vertical longitudinal section of the furnace, and Fig. 1ª a vertical longitudinal section of a modified part. Fig. 2 represents a plan view of the same furnace.

The combustion chamber *z* shown in Fig. 1 in longitudinal vertical section has the fire bridge c^3 built into the walls. Above the front of the furnace the hopper e^3 is arranged, which at its lower end is provided with a cut-off valve *g* and connected by a sleeve *f* with the disintegrating and supplying sieve *i* (Fig. 2), rocked to and fro on its vertical axis by means of its stud *i'*. The coal dust falling down through the oscillating sieve passes through the funnel e^3 and

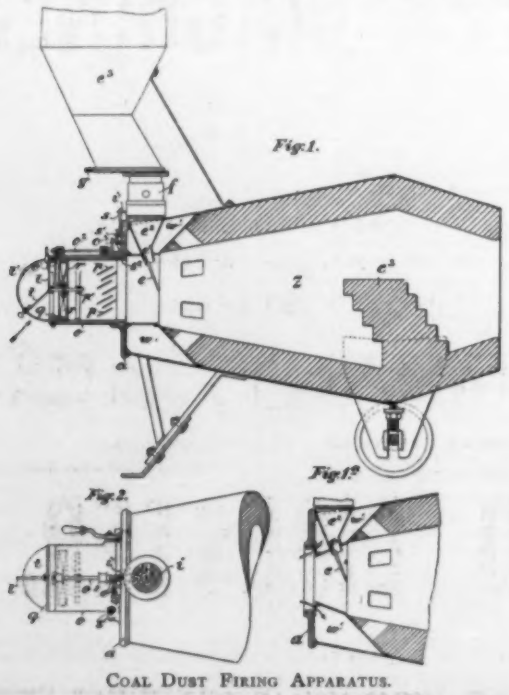

Fig. 1.

Fig. 1ª.

Fig. 2.

COAL DUST FIRING APPARATUS.

the sloping channel *e'* into the comb-like arranged open gutters *e*, which penetrate the entrance to the combustion chamber behind the front plate *a*. There is a small circular wall or mouthpiece *o* secured to the front plate and presenting on its rear end a number of superposed and upwardly sloping plates *p*. These impart an upward motion to the current of air which is drawn in from the chimney through the mouthpiece *o*, so that it takes up the coal dust from the gutters *e* and carries the same so much farther into the almost horizontal combustion chamber *z*.

In order that the swinging motion of the grating or sieve *i'* may be produced without the aid of an extraneous motor, a fan wheel *r* is inserted with its framework *g'* into the mouthpiece *o* and is further supported at *p'* in the latter. When the framework or ring *g'* is taken out the fan wheel can be easily removed. For converting the rotary motion of the fan into the swinging motion of the sieve plate *i*, the nave of the wheel *r* is provided with a stud *r'*, which, by means of a system of levers o', o^2, o^3 *s* engaging the peg or stud *i''* of the sieve plate *i*, sets the sieve in motion in the one direction, while its return motion, the extent of which can be regulated by the screw *s'*, is brought about by the spring s^2. The regulation of the amount of air to be introduced is effected by two semi-circular dampers *t* which are fitted to the front of the ring *g* and can be secured at any desired angle of opening by means of the crown or stirrup *t'*. In the arrangement of the parts shown in Fig. 1 it is supposed that only a portion of the air requisite for supporting the combustion passes the fan and the mouthpiece *o*, as the circular space *w'* receives the air through openings in its exterior wall not shown in the drawings. In Fig. 1ª, on the contrary, it is supposed that the entire amount of air passes through the fan *r*, mouthpiece *o* and plates *p*, and is then divided to pass partly through the gutters *e* and partly as indicated by the arrows through the circular air chamber *w'* into the furnace.

In another form not illustrated the mouthpiece is fitted to a doorway which bears the coal dust funnel with its allied parts, and is adapted to the furnace front, closing the flue. The motion of the sieve plate is brought about by means of a spring and system of levers similar to that shown in Fig. 1.

Another form of the apparatus has also the above described arrangement of coal dust funnel on a doorway, fitted between the furnace front and the mouthpiece, which in this case is curved round so that the fan lies in the horizontal plane. The axis of the fan will therefore pass up vertically through the wall of the curved mouthpiece, and has an eccentric peg or pin at its upper end which again, in conjunction with a spring and a system of levers, imparts a to and fro motion to the sieve plate. Since the entire parts are seated on the furnace front this furnace front can be just as well applied to the door frame of a furnace arranged within the boiler as of one arranged underneath or, as shown in the drawings, before the same.

In order to kindle the fire in the coal dust furnace, a small fire is first lighted in the combustion chamber, and the air is admitted in the mouthpiece *o* to move the wheel *r*. Thereby the coal dust is blown into the combustion chamber, the temperature of which in a few minutes attains the normal degree of heat requisite to insure perfect smokeless combustion.

The Compound Engine.

The compound engine has come to stay, and the sooner we familiarize ourselves with it and the conditions under which it works to the best advantage the better it will be for us.

A certain engineer made the remark a short time ago that so well is this form of engine established in favor that it is a difficult matter to induce an engineer to argue against it. This is probably true, but at the same time there are those who believe that under the same favorable conditions the simple engine will show nearly if not quite as good results as the compound, and the writer will mention some of the points made by them, but without declaring either for or against either side at this time.

They claim that economy is due to high steam pressures, and that these high pressures are seldom or never used with the simple engine, therefore it is discriminated against, which is plainly unfair. They maintain that if these high pressures were used in connection with a condenser forming a nearly perfect vacuum on the exhaust side of the piston, the cut off would be short, the rate of expansion high and the terminal pressure low, showing that all of the available heat is extracted from the steam, and no form of engine can do more than this.

It is pointed out that the clearance of a compound engine can never be made as small as in a well designed simple engine, because as more cylinders are added the clearance must be multiplied. With any form of receiver, together with large cylinders, the radiating surface is great, and must entail a considerable loss. The first cost of these complicated machines is great, and the expense of maintenance large in proportion. If one cylinder with its valve gear is liable to derangement by accident, then with two cylinders this liability is doubled.

On the other hand the advocates of the compound or compound condensing engine claim that if an initial pressure of say 150 pounds absolute is used with the simple engine, and the cut off is short enough to bring the terminal pressure down to 4 pounds, the difference in temperature is great, and when a charge of steam at this high pressure is admitted to a cylinder from which steam at this low pressure has just been exhausted, a portion of it must be condensed, which results in a direct loss, and this is a large item. As to loss by clearance, it is pointed out that steam used to fill the clearance space is not all lost, as it is expansive, the same as any other steam, and thus does some work.

Furthermore, the clearance space can be, and usually is filled with exhaust steam, and the clearance in the high pressure cylinder is all that should be taken into account, for the other cylinders only receive what is exhausted from the first one. If cylinders are well protected from the atmosphere the radiation will be reduced to a minimum, and the water of condensation may be returned to the boilers.

It is admitted that the first cost of a compound condensing engine is large, but, as it requires less boiler capacity to run it, the cost of the entire plant will be about the same as with a simple engine. The cost of keeping the boilers in repair will therefore be less, and this will offset the cost of keeping a more complicated engine in repair. On general principles, if a small per cent. of the fuel bill can be saved it will more than pay all the cost of repairs.

Concerning all such matters it should be remembered that one experiment does not always settle a question, for cases can be cited where simple engines are doing good work and compound engines poor work, and of course it is an easy matter to tell of other cases to the contrary. These experiments or tests in everyday practice do demonstrate one thing, however, and that is, for any engine to be a success it must be adapted to the work that it is to do, and to this rule there is no exception.—*W. H. Wakeman, in Manufacturers' Gazette.*

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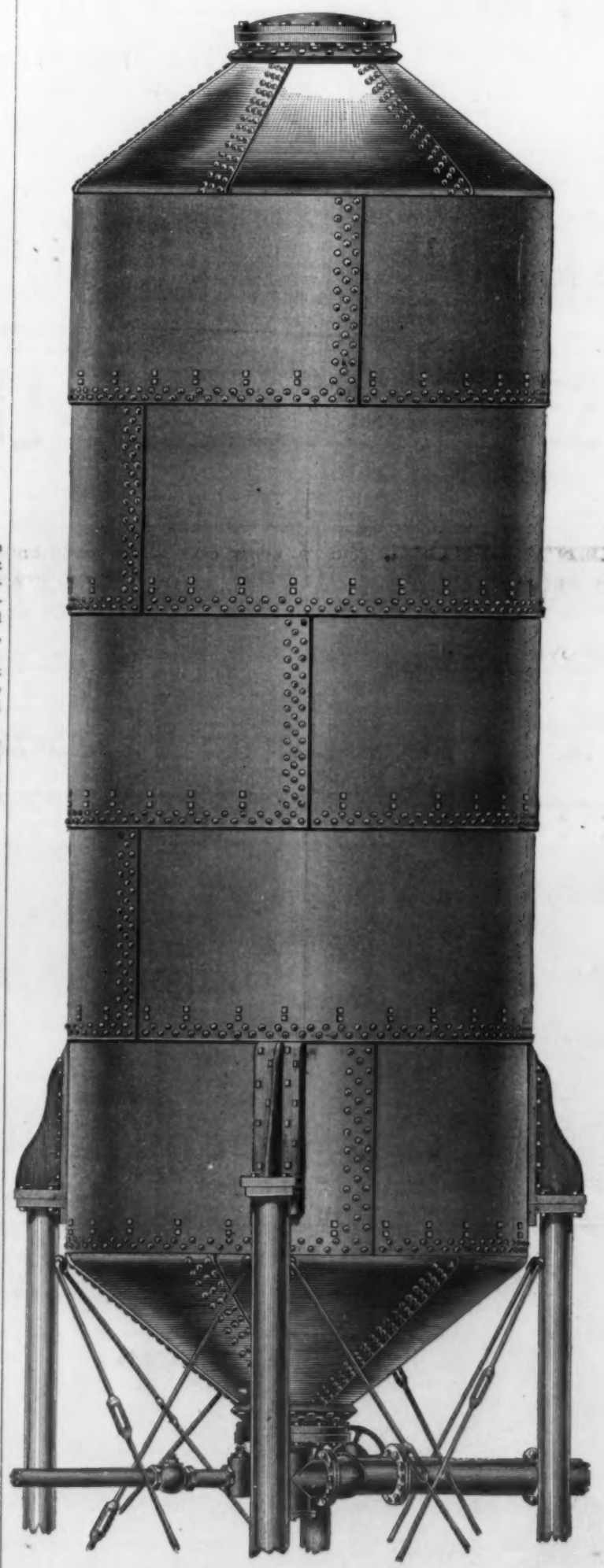

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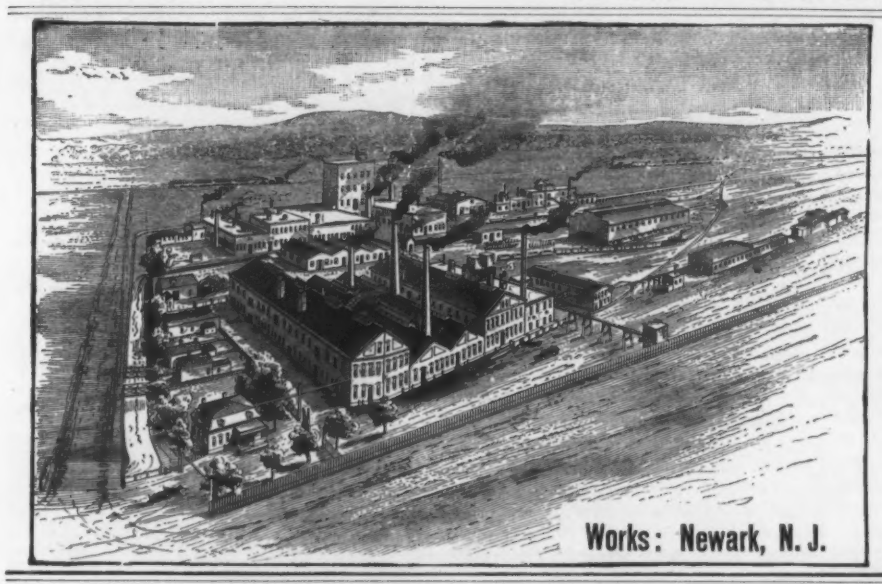
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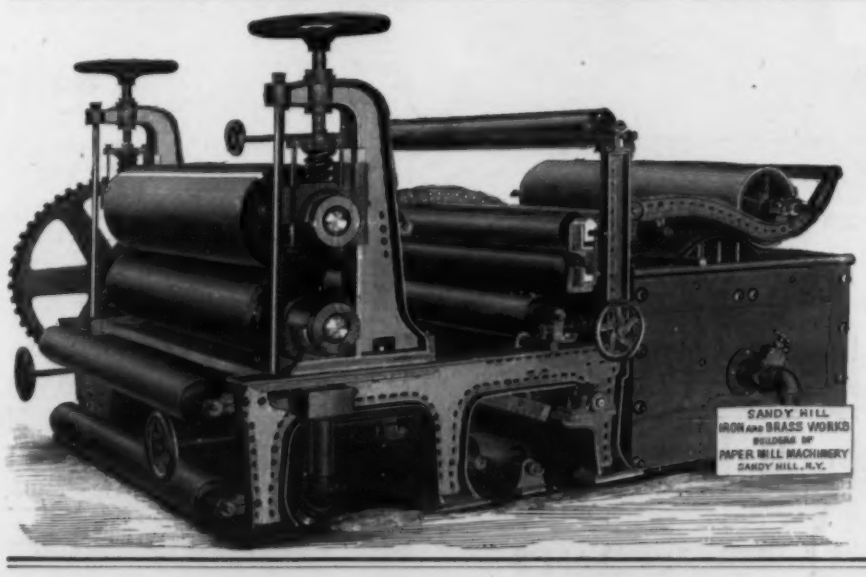

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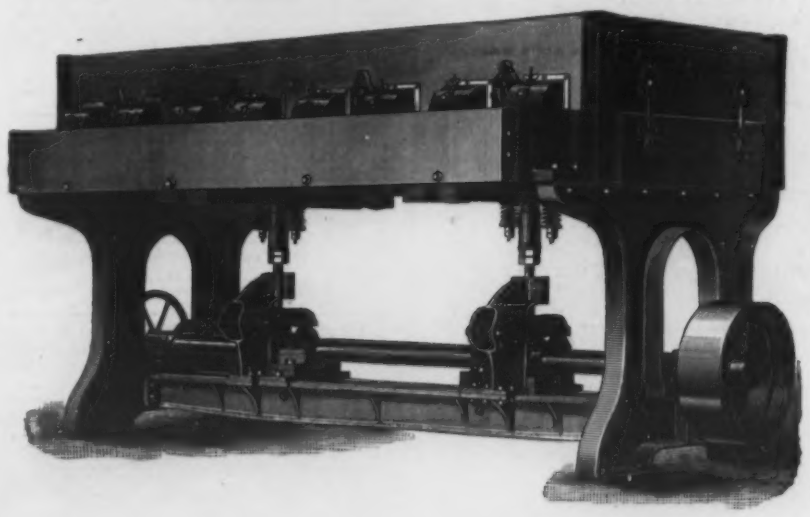

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Briquette Fuel.

Various English and Continental methods of agglomerating slack coal, which has now become an important and increasing industry, have opened up an outlet for large quantities of small coal hitherto lost on the pit bank or in the workings.

The characteristics of good pitch derived from coal tar rendered that agent in every way the most suitable. Upon the authority of William Colquhoun, C. E., in a paper read before the London Institution of Civil Engineers, the use of from eight to nine per cent. of pitch, slack coal might be agglomerated into a form eminently suitable for storage purposes—waterproof, incapable of deterioration on exposure, of cohesion greater than the large coal from which it was derived, and finally, having calorific qualities nearly equal to large coal.

In support of the latter contention may be cited the results of three experiments with English briquette, which gave 8.41, 8.77 and 8.99 pounds respectively, as the weight of water evaporated from and at 212° Fahr. per pound of fuel. The average evaporative power of several of the best Welsh steam coals was 9.33 pounds.

Careful experiments on the Paris, Lyons & Mediterranean Railway gave as corresponding figures for three descriptions of French briquettes 8.88, 9.15 and 8.68 pounds respectively.

The mechanical preparation of the coal used in briquette manufacture received more attention on the Continent than in England, particularly in regard to the washing and subsequent drying of the slack. These operations were necessary in order to render the poorer coals serviceable for the manufacture.

The coal and pitch were intimately intermixed by two methods, known respectively as the melted and dry-pitch processes, the pitch by the former being melted (sometimes with additions of common tar) prior to its addition to the coal, and by the latter being ground up with the coal in a dry state. Several examples were given of the procedure in each case. In both instances the mixture of coal and pitch was subjected to the action of heat until each particle of coal was covered with a film of melted pitch, and so rendered fit for compression into blocks. In this state the mixture or paste contained from three to five per cent. of water, in order to facilitate the sliding of the particles of coal one on the other during compression.

The machines for compressing the paste may be roughly divided into three classes, irrespective of the nature of the power employed. These classes are: First, single compression machines; secondly, machines compressing on both sides of the briquette: thirdly, machines acting by the tangential pressure of rolls.

Briquettes hot from the press had an inconsiderable cohesion, and had to be treated with care in stacking and loading, and arrangements made to keep down the cost of labor. Costs were given of making briquettes in works in England, in the north of France and in Belgium, the cost of labor, fuel, supplies and maintenance, not inclusive of the cost of materials agglomerated, being 2s. 1½d., 1s. 9d. and 2s. 6d. respectively.

Instances were cited of the suitability of the same process for the agglomeration of charcoal dust, sawdust, coke breeze, friable iron ores and cement.

Electricity and Fires.

The *Standard* has the following contribution from H. C. Cushing, Jr., which contains some warnings that it would be well to heed:

"When electricity is allowed to roam at large and in vast quantities all along our water and gas pipes and through the ground upon which the city is built, in order to get back to the sources from which it was generated, which are the street trolley railway power stations, it is this state of affairs which is creating a trouble, the extent and seriousness of which is only known to those few who have made it a study. These street railway power stations, operating the overhead trolley system, are constantly generating thousands of horse power of electricity, sending it out by overhead trolley and feed wires to the cars which it operates, and returning it to the station by means of the water and gas pipes which lie in its course. For this reason there is a tremendous electrolytic action going on all the time. When I speak of this trouble from electrolysis I do not mean that Boston and Cambridge are the only centres affected, but every city in the United States operating a trolley system with ground returns. The writer has samples of gas and water pipe completely eaten through by electrolytic action in three months after having been placed in the ground near street railway returns. This effect has been going on and will continue to go on as long as there is a grounded wire in electric street railway construction.

Whenever this returning current flows in any quantity along a pipe there is bound to be a large fall of potential varying in different pipes as their carrying capacity increases or diminishes.

In the cellars and basements of many houses I have found quite a large difference of electrical pressure between two pipes entering within one foot of each other, and in one instance it was a very easy matter to take a piece of hoop iron and draw an electric arc sufficent to ignite a piece of waste held near it, and by connecting these pipes together with a piece of No. 18 copper wire, the current flowing through it was sufficient to heat it so that it was impossible to lay one's hand upon it. In the basement of another building, not 200 yards from where the writer sits, I find a man using twenty-five amperes at eight volts pressure, or electricity enough to run small motors and incandescent lamps, as well as all the electrical bells in the entire building, by simply twisting his wires around two different water pipes which enter the building.

Some time ago my attention was called to two pipes which were so close together that the vibration of an elevator engine caused them to knock together just sufficient to create an arc every time a contact was made and broken. This had been going on so that it had almost completely eaten through the gas pipe, and it is perfectly evident what would have taken place had this been allowed to go on unobserved. The gas would have been ignited as soon as the first small hole appeared, by the electric spark, and disastrous results would have undoubtedly followed. This difference of electrical pressure upon water and gas pipes is now so well known that in a number of cases in the cities of Boston and Cambridge the ordinary electric bell battery is entirely discarded and the wires from the bells connected directly to the water pipes, the latter furnishing an inexhaustible supply of electricity at the proper pressure to run any number of bells or gas lighting apparatus, and also to do any quantity of mischief. I can see no reason why fires should not be attributed to this cause, when it can be proved that such a difference of electrical pressure really does exist between any two pipes entering a building in the vicinity of the trolley system of street railways.

There is only one way of eliminating this rapidly increasing danger, and that is by compelling the electric street railway companies to insulate, from the ground, their entire electrical circuit, and just as soon as a suit for damages is brought by the water and gas companies for a complete system of pipes destroyed by electrolysis, the railway companies will begin to remedy the evil, which they are more fully aware of than anyone else."

Gray Stain for Brass.

Many black and gray pickles possess the defect that they give different colors with different copper alloys, while in the case of certain alloys they refuse to act altogether. For instance, carbonate of copper, dissolved in ammonia, gives to brass a handsome dark-gray color, while it does not attack various other alloys and is therefore unsuited for instruments. A dark-gray pickle, which stains all copper alloys indiscriminately, a handsome gray, resembling in color the costly platinum, is composed by dissolving 50 grams arsenic in 250 grams hydrochloric acid, and adding to the solution 35 grams chloride of antimony and 35 grams finely pulverized hammer scales. The articles to be pickled are rinsed in a weak warm soda solution, prior to as well as after immersion, to be followed by continued rinsing in water. The recipe is simple and has been repeatedly tested with uniformly good results.—*Manufacturer and Builder.*

For a cement to fasten iron to stone take 20 parts iron filings, 60 parts of plaster of paris and 1 part of sal ammoniac; mix with weak vinegar to a fluid paste and apply at once

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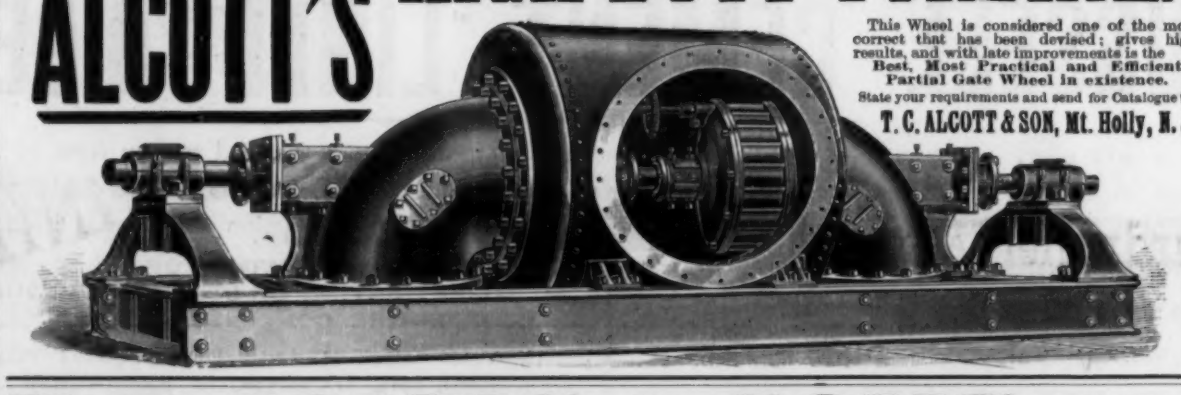
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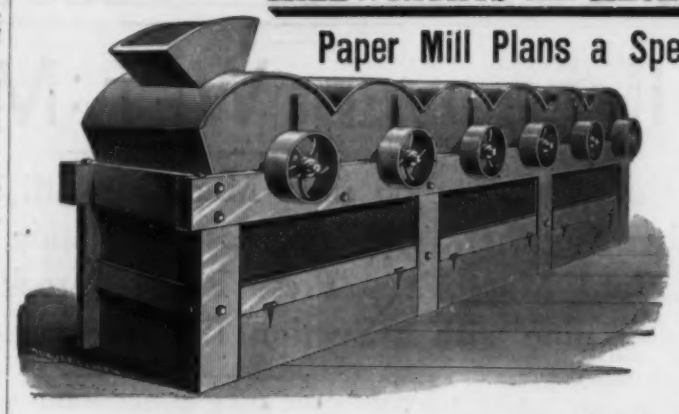
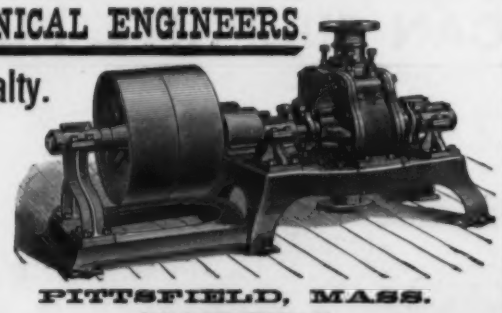
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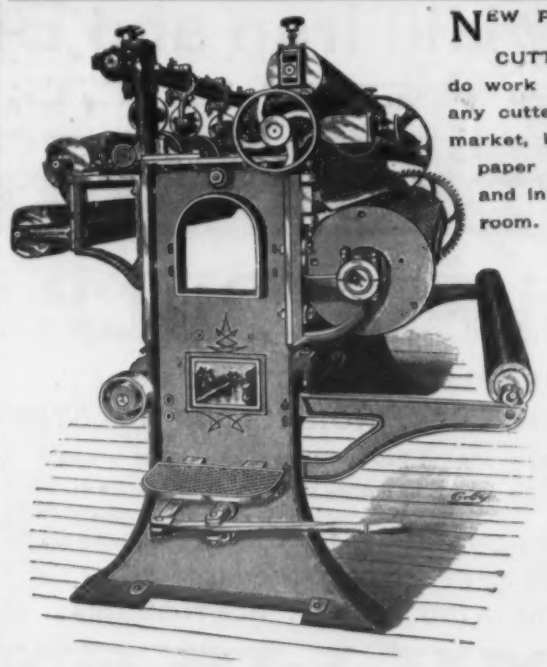
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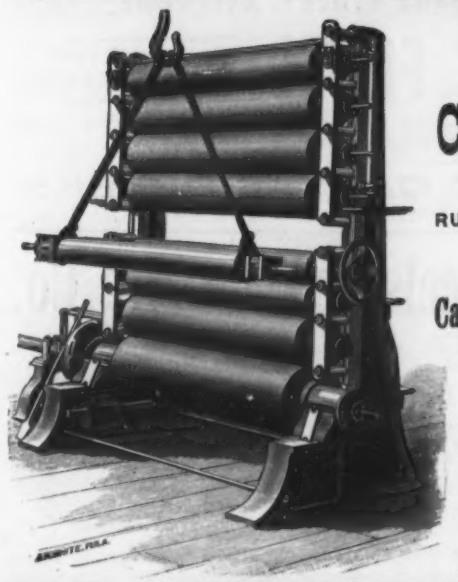

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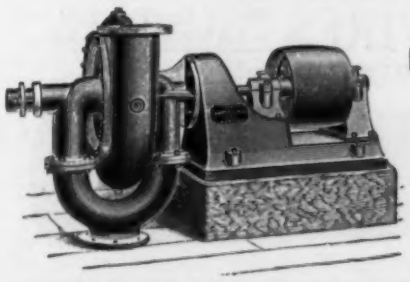

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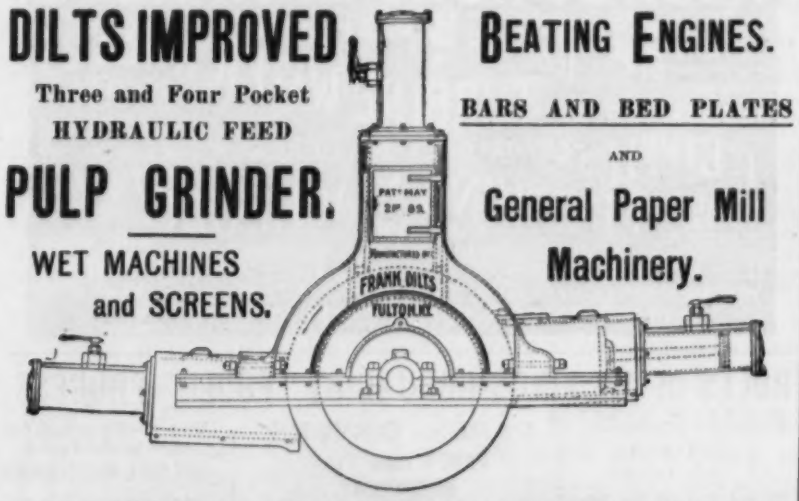

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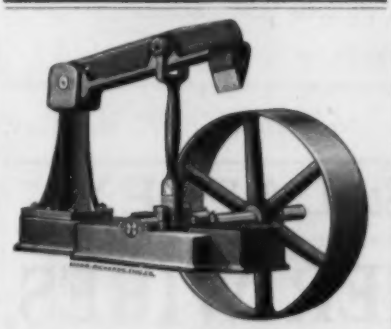

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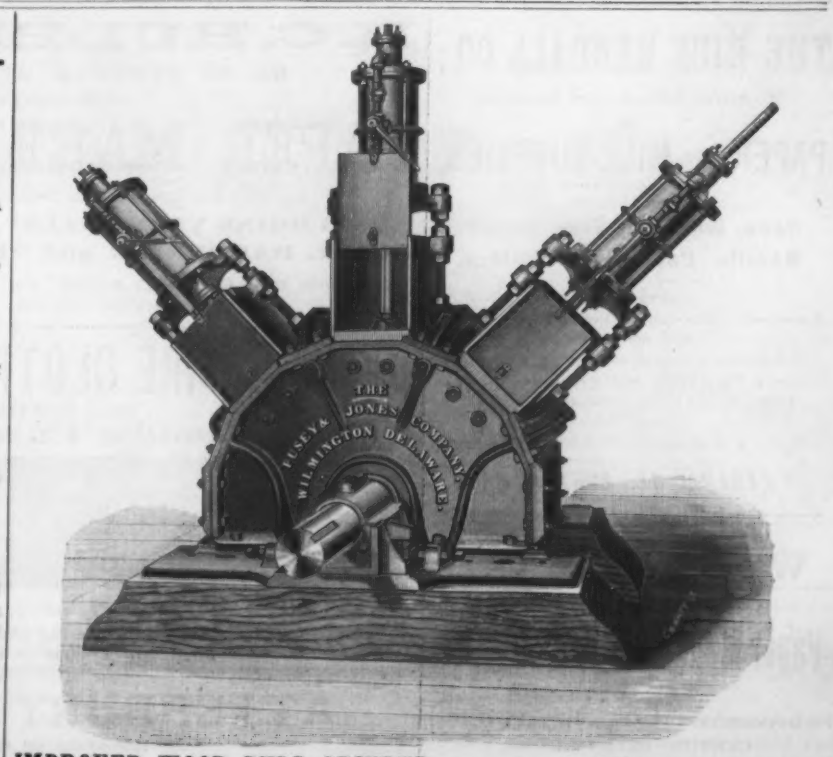

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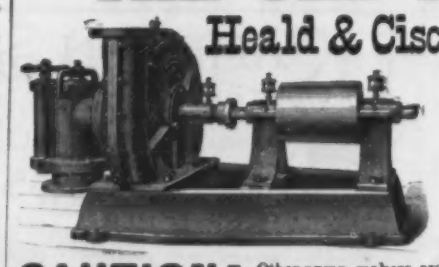

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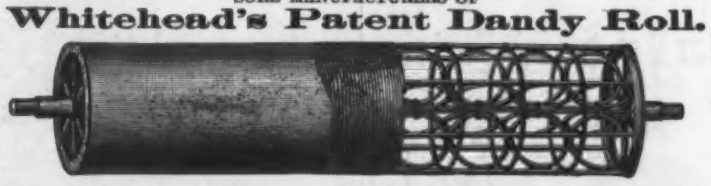

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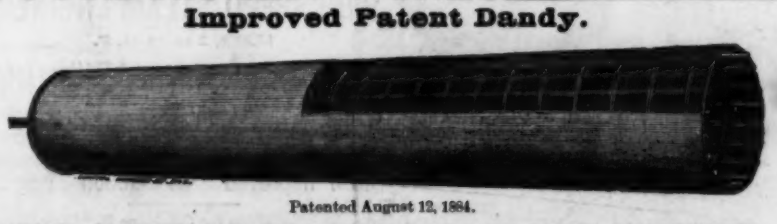

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